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Address.

THE PRESENT STATUS OF OTOLOGY, AND SOME SUGGESTIONS FOR ITS BETTERMENT.

CHAIRMAN'S ADDRESS BEFORE THE SECTION ON LARYNGOLOGY AND OTOLOGY, AT THE FIFTY-FIFTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, AT ATLANTIC CITY, JUNE 7-10, 1904.

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The Association by-laws make it obligatory on the Chairman of the Section to deliver an annual address on the recent advances in the branches belonging to his Section, and to make suggestions for improvement of the work. I have chosen to devote the time to the latter part of the obligation, for during the period in which I have observed the position of otology among specialties, the fact has been frequently and painfully brought to my attention that diseases of the ear have not received the same scientific awakening on the part of the profession that has, in the score of years just past, been given to other branches of medical and surgical practice. And while it is true that this subject has been, and continues to be thoroughly investigated and scientifically practiced by a comparatively few in the centers of learning and the larger cities, the prevailing tendency of the times to investigate every phase of a given disease by every known and rapidly multiplying method, has certainly not been as thoroughly or efficiently applied to otology as to sister specialties. Otologic investigators and practitioners who have given the subject a proper amount of labor, and who have applied in their practice the best known and most rational principles of medical and surgical art, have placed the specialty on a scientific footing, and have achieved results quite commensurate with medicine and surgery in general. With the medical profession as a whole, however, there has not been that progress, and with the public there has not been that general understanding concerning this branch, which has been so characteristic and marked a feature of other specialties. The principles governing modern medicine are better understood, and more rationally practiced in every other division than the one in question. What physician who has received his medical training within the last decade would tell his patient suffering from a fistula, leading, for example, to a sequestrum of the femur, that he will outgrow the same? Who having such recent training would be satisfied with the application of poultices to such an ailment, or with indefinitely syringing the channel with an antiseptic solution? Yet apparently a large number of the profession who would rationally ascertain the nature and extent of such ailment if located on the leg, and would skillfully lay open the diseased tract and remove its pathologic tissues, thus certainly effecting a cure, seem utterly to ignore the necessity of extensively investigating aural ailments with similar pathologic conditions, and fail entirely to apply sound surgical or medical principles in their efforts to cure. The most sublime faith is yet too often here exhibited in the belief that nature is all sufficient, and that under trivial treatment the patient will in time somehow outgrow his ailment.

Far too little attention is paid by the profession to ear diseases in their very incipiency. Too little opportunity is therefore afforded the aurist to treat this class of patients at a sufficiently early time to secure the best results. On the other hand, both profession and public place too great reliance in the otologist's ability to remedy incurable and neglected defects of hearing at any indefinite time during the progress of the ailment. Aurists themselves have given more effort to the discovery of methods intended to restore long-lost hearing, of the dry middle-ear variety, than the results obtained would seem to justify. The standing of otology would not be greatly lowered, nor the woes of mankind perceptibly increased, should all present knowledge concerning the treatment of this latter class of ear diseases be entirely lost. The persistent and ingenious efforts that have been made in attempting to cure these diseases have so far been most commendable from the viewpoint of tenacity of purpose. The future usefulness and standing of our specialty depends not nearly so much on continued attempts to discover a cure for the neglected incurable as it does on well-directed efforts of the profession in so persistently and forcefully placing the fact before the public, that only during childhood, and the very incipiency of ear diseases, can satisfactory results from treatment be attained. Such opportunities for earlier treatment could most surely be provided by active insistence on the part of otologists that school authorities shall provide for the examination of all school children, not only as to the hearing power, but also of the condition of the whole hearing apparatus, including a thorough investigation of the nose and throat.

Time will no doubt be the greatest factor in the betterment of this specialty. Medical colleges have already provided for more or less satisfactory teaching of this branch, and since most state boards of medical registration make a knowledge of this subject a requirement of graduation, the college work in ear diseases must soon grow stronger and ultimately satisfactory.

To a very considerable extent it would seem that medicine, like things commercial, to attain its greatest possibilities, must be popularized to the extent that it is much discussed by the public. Otologists have lacked

aggressiveness in the subtle art of diffusing knowledge concerning their specialty to the end that a necessary and useful amount of information would reach the public. Abdominal and general surgeons, ever ready with monstrous tumors to exhibit, and long columns of marvelous and successful operations to report, may be reckoned as ideal masters in the public distribution of information concerning their work, and the remarkable advances made in these specialties during recent years have been in no small measure due to the almost unlimited amount of discussion its advocates have made on all occasions, with the result that there is a general knowledge of these classes of diseases to the extent of knowing the nature of such diseases, the improbability of relief by medical means, the degree of certainty and safety of surgery, and withal such understanding as well enables those suffering from these ailments to act earlier, more wisely, and, therefore, more judiciously as to time of calling the surgeon for relief. It would, therefore, seem wise and essential to commensurate progress in otology, to emulate our more enthusiastic professional brothers, to the extent that we more vigorously assume the rôle of instructor, and that we should on proper and ethical occasions demonstrate the essential features of the anatomy, pathology and results of treatment of the hearing organ. Such effort would seldom fail in giving a more exalted opinion concerning the subject about which there seems at present to be the greatest general indifference. Aural topics should be more frequently brought before societies of the general practitioner, such discussions as often as possible taking the form of actual demonstrations, to the end that the meaning is the more intelligible. During such opportunities occasion should be taken to point out the fact which at present seems to be ignored, that the pathology of ear diseases is much the same as that of diseases elsewhere, and that, therefore, the same principles of medicine and surgery should govern the practitioner in treatment, whether the disease be located in the ear or abdomen.

Profession and public can not too often hear from those in authority that in no class of disease is delay more dangerous to function and often to life itself, than in aural infections. The aurist should more widely establish the fact that the hearing apparatus when diseased contains often the most violently septic foci, and that it is surrounded by parts so vital that extension of infective processes to them from the ear centers is more dangerous than the spread of inflammation from the appendix to the peritoneum, and therefore, that the necessity for early diagnosis and competent treatment is more urgent in otology than in abdominal surgery; also that the result, should the same degree of skill be exercised in each, and the same principles of surgery applied to both, is as good, and as much of a life-saving procedure in the one as in the other instance.

Knowledge of the fact that many aural diseases are extremely simple in their incipiency, and of the further fact that the means of cure at this period are also simple, comparatively easy, and the results certain, needs more universal and emphatic proclamation than has heretofore been given it. The absolute dependence of the majority of all aural affections on nasopharyngeal, pharyngeal and nasal diseases, should be insisted on and demonstrated. This is the more necessary from the fact that the old custom of associating diseases of the eye and ear still leads the public to regard the two as having a closer relationship than ever existed, and thus obscures the true pathology and consequent proper means of cure. Members of this Section are fully aware of the fact that most aural affections begin in childhood, and that the greatest percentage are then entirely curable. Neither profession nor laity seem as yet to have appreciated the full significance of this fact, and continue to ignore ailments at this period of life, unless of severe degree, until the child is old enough to realize the burden of his defect, at which time entirely satisfactory results from treatment are usually unattainable.

Otologists should insist on more accurate statements as to the cause of death in all cases dying from brain disease, to the end that the causative relationship of diseases located in the cavities which comprise the ear, and the other open sinuses which surround the base of the skull, may be more generally known. It now seems quite certain that were the investigation into the primary cause of all such deaths carried out, meningitis and brain abscess would usually be found to have their origin through secondary infection from these cavities. The term meningitis as a disease *per se* could no doubt be largely eliminated by the otologist and rhinologist should he make the same vigorous investigation into its origin that the surgeon has made as to the primary cause of peritonitis. This latter disease, as is now well known, is nearly or perhaps always secondary to rupture of the appendix, pus tubes, etc., and, therefore, the original cause is sought out by the abdominal surgeon, promptly removed, and accurate results are thus obtained. The term peritonitis now means something definite to both profession and public; it means a disease resulting from a source which is removable, and, therefore, both profession and public insist at the earliest moment on this being done. The term meningitis must also be given a new significance. The word itself speaks of that same variety of helplessness as the sentence, "The Lord giveth and the Lord taketh away." But once the profession, and through it the public, knows that there is a preventable cause behind the disease, then it will be earlier demanded that something be done, and thus will otology be advanced materially as a useful specialty.

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Original Articles.

SECONDARY MANIFESTATIONS OF HYPERNEPHROMATA.*

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During the last few years the subject of hypernephroma has received a thorough consideration by a number of careful observers. Special phases of the subject have received special emphasis. When cases are reported, reference is always made to the question of secondary manifestations. It is a question, however, which presents a number of interesting features, and for that reason we have given it considerable thought.

Mention is frequently made of the rarity of this tumor formation; this, however, is a mistake. On the other hand, the pathologist who carefully examines all specimens brought to him finds them of rather frequent occurrence.

A hypernephroma is a tumor consisting of adrenal structure and having its origin from suprarenal gland,

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pathology and Physiology, and approved for publication by the Executive Committee: Drs. V. C. Vaughan, Frank B. Wynn and Joseph McFarland.

or from particles of this gland which have become displaced, the displacement of tissue being usually into the kidney or under its capsule. Misplacement of tissue elements often takes place during the period of development, and on account of the close proximity of the adrenal to the kidney it is easily possible to have rests of adrenal structure included within the kidney substance, especially since the fetal kidney is lobulated and portions of the adrenal may be buried in one of the furrows between the lobules and later become inclosed. Such rests are occasionally seen at autopsy, appearing as small yellowish nodules, on an average about the size of a pea, their true nature being readily recognized by a microscopic section. The misplacement of adrenal tissue is not always into the kidney. Primary hypernephroma development has also been seen in the broad ligament, liver, etc. In other cases simple misplacement without tumor formation has been seen in the ovary, spleen, along the spermatic cord, etc.

Hypernephromata occur usually in persons past middle life, and are more frequent in males than in females. They serve as excellent illustrations of the well-known Cohnheim theory of tumor formation, i. e., the formation of tumors from tissues misplaced during the period of development. But we must have something to account for the fact that after they have lain dormant for years, they take on an active growth. In some cases it seems that traumatism plays some part in stimulating them to increased activity, but for the real explanation of their development we must go back to the same causes that underlie the origin of tumors in general.

For some time they often appear to be benign, but sooner or later, as a rule, their malignant characteristics are made manifest by their infiltrating tendency and by metastatic formations in other organs. There are some who would have us differentiate between benign and malignant hypernephromata. Those arising from the adrenal itself are, as a rule, quite well circumscribed and separated from the kidney by a connective tissue capsule, whereas those which originate within the kidney present somewhat more malignant manifestations. This distinction can not, however, be very well maintained, and the malignancy is probably simply a matter of degree, just as the malignancy of carcinoma and sarcoma is, to a certain extent, subject to variation. Although it is true that we can not, on microscopic examination, differentiate between the benign and malignant, yet it is also true that some are far more malignant than others. A. P. Ohlmacher reports two cases[1] in which the tumors attained considerable size, were well encapsulated, had no infiltrating tendencies, and did not give rise to metastatic formations. These might be termed benign hypernephromata. On the other hand, some are exceedingly malignant, either because of an unusual infiltrating tendency of the primary tumor or because of the early and rapid metastatic formations. E. R. Le Count[2] has reported a case of hypernephroma, in which the primary tumor, about the size of a hen's egg, involved the lower pole of the right kidney. By extension it almost filled the pelvis, and involved also the bones on the right side; this was followed by a pathologic fracture of the right ilium. It also extended through the first sacral vertebra, which led to a tumor formation of the right buttock with ulceration and gangrene. Metastases were also found in the left iliac lymph glands and the left femur, the latter resulting in a pathologic fracture of that bone about three months before death. This is a very good example of a malignant hypernephroma.

The gross appearance of the tumor is that of a rather soft, smooth, rounded or reniform-shaped tumor, varying in size, often being as large as a child's head. On cut-section we find that it does not present such a uniform appearance as sarcomata or carcinomata, but here and there we find areas of softening and foci of necrosis, as well as large hemorrhages and areas having a peculiar sulphur yellow color. The hemorrhages are due to the fact that the tumor is very vascular, and blood vessels are poorly formed and readily affected by necrosis. Microscopically, the tumor consists principally of tissue reproducing adrenal structure. The stroma consists in certain places of rather dense connective tissue; at other places of a delicate network of capillaries, in the meshes of which we find tumor cells proper, which are usually large and round or polygonal in shape. These cells are rather rich in fat and glycogen, as revealed by proper stains. The tumor at this time reproduces the cells of the cortex of the adrenal; at other times the cells of the medullary portion, and according to the kind of cells reproduced, we have two varieties of hypernephromata, the former presenting a more or less tubular arrangement, the capillary projections being lined by cortex cells, whereas the latter presents more of an alveolar arrangement, the alveolar spaces filled with rather large, polygonal medullary cells. In some cases both cortical and medullary portions are present.

Before considering the secondary manifestations in detail, we will briefly refer to five cases of hypernephromata that have come into our hands during the past five years:

CASE 1.—Patient from the service of Dr. Wm. Jepson, University Hospital, surgical clinic record No. 59. Mrs. B. S., aged 58, was attacked about three years ago with severe pain in back and left side of abdomen. Second attack three months later. At the time of the third attack, which occurred about six months after the second, there was also marked hematuria. Since that time attacks of pain, hematuria and frequent micturition were more frequent, and sometimes quite constant. The tumor was not discovered until about four months previous to operation.

Operation.—Patient entered the University Hospital, Jan. 12, 1903. A large mass about the size of a child's head and quite firmly fixed was palpable in the region of the left kidney. At time of operation, a retroperitoneal tumor, attached to the upper end of the left kidney was discovered. The ureter and renal vessels were tied and kidney with tumor removed.

Examination of Tumor.—The neoplasm presented a flesh-colored appearance. Here and there on the surface yellowish-colored areas were found; at other places, large tortuous veins. The tumor measured 19 cm. in length, 15.5 cm. in breadth, and 10.5 cm. in thickness. On cut sections it presented a mottled appearance, the tumor substance proper of a yellowish-pink color; hemorrhagic areas of a reddish to brownish color, and necrotic foci of a grayish color. The microscopic examination proved it to be a hypernephroma of the type reproducing the medullary substance of the adrenal. This diagnosis was confirmed by chemical tests.

CASE 2.—This specimen was brought to the laboratory last September. It was removed at autopsy from a man about forty-four years old, whose illness began about nine months previous. Just above and anterior to the left kidney was a large tumor mass about fourteen cm. in diameter. It presented a rather rough surface which projected into the peritoneal cavity. Secondary tumor formations were found in the liver, lungs and on the intestine. The formations on the intestine were pedunculated, varying in size from a pea to a walnut. Some of these were covered by a smooth serous mem-

1. Cleveland Medical Journal, vol. ii, No. 3.
2. Transactions Chicago Pathological Society, vol. v, No. 5.

brane (peritoneal lining) and represented evidently metastases through the circulation. Others were rough on the surface and on microscopic section it was found that the peritoneum extended beneath the tumor; these were evidently secondary formations due to implantation. On cut section all of the tumor formations presented a mottled appearance—red (areas of hemorrhage), brown (hematogenous pigment from old hemorrhage), pink (tumor substance proper), grayish-yellow (necrosis), and salmon-yellow-colored areas peculiar to this tumor formation. The microscopic examination proved this tumor to be a hypernephroma reproducing the structure of the adrenal cortex.

CASE 3.—The following brief data were obtained from Dr. G. E. Decker, Davenport, Iowa, by whom the specimen was presented to the laboratory. The patient was Mrs. R., aged 40 years.

Operation.—In March 1902, a cyst of the right ovary was removed, but a short time after recovery from the operation, the patient began to complain of pain in the right inguinal region, which later ascended toward the region of the liver, leading to a diagnosis of gallstones, for which a second operation was made on April 1, 1903. At the time of the operation, gallstones were not detected, but instead a tumor was discovered just beneath the edge of the liver, and having its origin from, and involving the upper two-thirds of the right kidney; the growth with the kidney was removed completely.

Examination of Tumor.—The tumor formation, about eleven cm. in diameter, was nodular, quite soft, of a yellowish-gray color, and involved the upper pole of the kidney. By infiltration it was gradually encroaching on the kidney substance and leading to secondary formations in that organ. The urine was entirely negative. No metastasis in other parts of the body, nor is there at present, two months after the removal of the organ, any evidence of such. A tentative diagnosis of hypernephroma was made, and was confirmed by microscopic examination. The presence of tubular formations indicated that it was of the adrenal cortex type.

CASE 4.—This case represents a series of specimens removed at autopsy, Nov. 15, 1903, and the following clinical data of the case were obtained through the kindness of Dr. C. J. Smithay, Belle Plaine, Iowa: Woman, 25 years. Married. Mother of one child five years old. Had been in good health until about a year before her death; during her illness presented principally the signs of extensive circulatory disturbance in the form of edema of the lower extremities, edema of the larynx, and very marked ascites. The urinary findings disclosed a small amount of albumin and a few hyaline casts. Periods of diarrhea alternated with those of constipation. An enlargement of the liver was demonstrable during the last six months.

Autopsy.—A large tumor from the region of the left kidney was removed, along with the lungs and liver in which secondary growths were present, and all forwarded to the laboratory for examination. The primary tumor was very large, twenty-nine cm. long, nineteen cm. wide, and seventeen cm. thick. Although it was found beneath the capsule of the left kidney, yet it had no connection with that organ. It did, however, involve the renal vein for about ten cm., beginning just where the renal vein leaves the kidney. The tumor substance by infiltration caused a marked thickening of the walls of this vessel and even projected into the lumen as a rather rough, diffuse, irregularly shaped process.

Examination of Tumor.—The tumor mass was quite firm, and on cut section presented areas of a salmon-yellow color alternating with solid masses of necrotic tissue. The neoplasm was well encapsulated. Extensive secondary formations were found in the liver and lungs. Tumor substance was found attached to the wall of some of the hepatic veins. On microscopic section, the tumor was found to be an adrenal cortex-reproducing hypernephroma.

CASE 5.—The following brief history was very kindly furnished by Dr. G. J. Bennett, Denver, Iowa. A boy, five years of age, until about a year ago had been in robust health. When four years old several of the cervical glands began to soften, and were opened and drained. Healing was complete in about three weeks. About eight months later the boy again began to fail in health, and on Feb. 20, 1904, Dr. G. J. Bennett was called and discovered what appeared to be an enormously enlarged liver. This diagnosis was confirmed by Dr. F. W. Powers, Waterloo, Iowa, who was called in consultation. The urine examination was negative.

Autopsy and Examination of Tumor.—The child died Feb. 27, 1904, and an autopsy was performed. The right kidney was found to have been entirely replaced by a large tumor formation, about nineteen cm. long, twelve cm. wide, and nine and one-half cm. thick. On cut section it was found to be very soft in consistency, certain parts being only semisolid. It was of a diffuse light salmon-yellow color. Secondary formations were found in the liver, and various places in the abdominal cavity attached to the intestine. One large mass was found behind the transverse colon. All of the secondary manifestations presented the same characteristics as the primary tumor. On microscopic examination, the tumor was found to be a hypernephroma of the type which reproduces the medullary portion of the adrenal.

Secondary manifestations of hypernephromata are found most commonly in the liver, the lungs and bones, although any part of the body may be affected. Extension to other parts of the body may be by: 1. Metastasis, either through the blood vessels or lymphatics. 2. Implantation, either in the peritoneal cavity or along the urinary tract.

Let us consider these somewhat more in detail.

METASTASIS.

1. *Extension Through the Blood Vessels.*—Metastasis, by way of the renal vein, is by far the most common and important method of extension. Involvement of this vein is of frequent occurrence, the tumor either extending along the walls of the vein or existing as masses completely or nearly filling the vessel. The tumor substance, usually of a more or less friable character, readily gains access to the circulation and by it spreads first to the lungs, then, by passing through the lungs and gaining access to the general circulation, to other parts of the body, such as the bones, etc. The liver is also frequently affected, due, no doubt in most cases, to retrograde embolism from the vena cava and portal vein. Case No. 4, reported in this paper, may be taken as a typical example illustrating this method of extension. There was a marked involvement of the renal vein with many and large metastatic formations in both the liver and lungs. The invasion of the renal vein in cases of hypernephroma is also of great clinical interest because: 1. It explains the method of extension in most cases. 2. Its absence means (usually) that the tumor is yet localized, and so is of considerable value in prognosis. 3. The frequency and constant possibility of its occurrence should caution the surgeon not to manipulate the tumor too much, either before or during operation. During the operation it would no doubt be advisable to ligate the renal and other large veins before the tumor is removed from its attachment, in order not to liberate any particles of the tumor mass which may be loosely adherent to the vessel wall.

That distribution by the blood vessels is by far the most common method of spread of hypernephromata, is well shown in the comprehensive article of Dr. A. O. J. Kelly,[3] in which he described a number of hypernephromata with metastases, all of which were due to extension by means of the circulation. This article is a very good one for reference, especially because it contains a very thorough bibliography of the subject.

3. Beiträge zur pathologischen Anatomie, vol. xxiii, 1898, p. 280.

2. *Extension Through the Lymphatics.*—This method is seldom chosen by hypernephromata. Most of our authors do not even refer to it. In an article on the subject by Thorndike and Cunningham,[4] they say that these tumors "do not involve the lymphatic channels." Although it may be true that such a method is rare, it can not, however, be doubted but that such may and does occur. When any tumor gradually infiltrates surrounding tissue, the tumor cells necessarily pass in the direction of least resistance, which means that they spread principally along the lymphatic spaces. Hypernephromata frequently present this infiltrating character. Again, there is no doubt but that metastases through the lymphatic vessels do occur. Le Count has described a case (*loc. cit.*) in which the glands of the left inguinal region were involved by this tumor process. The extension in this case was in all probability through the lymphatics. Of more significance is Case 5, reported in this paper. In this case there was a marked involvement of the retroperitoneal glands.

Dr. F. J. Hall, Kansas City, Mo., who has been collecting the records of a large number of cases of hypernephromata has a record of one in which there was a recurrence of a hypernephroma in bronchial lymph nodes, and which was discovered at autopsy. Ten years before the right kidney containing a tumor formation was removed. During the operation the right pleural cavity was opened. Patient remained well until August, 1902, when he died of abscess of the lung. At autopsy a tumor about the size of a hen's egg, and involving the peribronchial lymph nodes, was found at the bifurcation of the trachea. Both bronchial tubes had been perforated by the tumor mass, the right completely occluded. On microscopic examination, it was found to be a hypernephroma. It is presumed that the right pleural cavity was infected with tumor cells ten years before, and that these cells had been carried to the lymph glands when they localized and formed a tumor process.

This method of extension is, however, of rather rare occurrence, by reason of which hypernephromata resemble sarcoma more than carcinoma.

IMPLANTATION.

1. *Within the Peritoneal Cavity.*—It is a well-known fact that particles of friable tumors growing in the peritoneal cavity, such as carcinoma or sarcoma of the uterus or papilloma of the ovary or an ovarian cyst, may be separated from the principal mass, and be carried about the peritoneal cavity through the movements of the intestinal tract and then by implantation lead to a secondary tumor formation. This same method of extension may characterize hypernephromata when once they extend into the peritoneal cavity. As an example of such, we refer to Case 2, previously reported. In this case it will be remembered that there were a number of small nodules attached to the serosa of the small intestines. The presence of such nodules need not necessarily signify that they were the result of implantation, since they might be simply metastatic formations through the circulation. In differentiating between the two, we would say that if these nodules on the intestine were covered by the serosa, then they would indicate metastatic formations through the circulation; whereas, if it was found that the serosa is quite intact and lying beneath the nodule, then we would consider the secondary formations due to implantation. Both of these conditions were found in the case reported.

2. *Implantation Along the Urinary Tract.*—Occasionally there are cases of secondary tumor formations in some part of the urinary tract, such as the bladder, resulting from the implantation of particles of tumor substance which have been broken from some primary tumor existing somewhere in the upper part of the urinary tract, such as the kidney. We have no knowledge of any case of hypernephroma manifesting itself in this manner, yet we can readily conceive of the possibility of such, since the pelvis of the kidney and the ureters are frequently involved in this neoplastic process.

CHARACTERISTICS OF THE SECONDARY MANIFESTATIONS OF HYPERNEPHROMATA.

Gross.—The secondary tumor formations present the same gross characteristics as the primary, and are usually readily recognized by their yellowish pigmented foci, with here and there red areas of hemorrhage and grayish-yellow masses of necrotic tissue.

Microscopic.—It is a well-recognized fact that the metastatic formations of malignant tumor have the same histologic characteristics as those of the primary growths. The metastatic formations of a round-cell sarcoma consist of round cells. A cylindric-celled epithelioma will lead to secondary formations of a similar structure, although it is true that the arrangement of the different elements may be somewhat modified by the structure and consistency of the organ involved.

As already stated, there are two kinds of hypernephromata, if we choose to classify them according to the part of the suprarenal gland which they reproduce. 1. What may be termed "cortical hypernephroma," one which reproduces the cortical substance of the adrenal. 2. A "medullary" hypernephromata, one which reproduces the medullary portion.

We would, therefore, expect to find that whatever may be the nature of the primary tumor, so also would be the structure of the secondary, and that if the primary is a mixed tumor, reproducing in part the cortical substance and in part the medullary, the secondary formations would be of the same character. This was found to be true in all of our specimens, and there are, perhaps, but very few exceptions. J. C. Ohlmacher,[5] however, refers to a malignant medullary hypernephroma about the size of an orange growing from the superior extremity of the left kidney, which encroached on the renal substance to occupy the upper two-thirds. It had also extended into the pelvis of the kidney so as to nearly obliterate it, and had invaded the renal vein. Metastatic formations later appeared in the left temporal bone, right side of the neck, left axilla, right abdominal wall, and beneath the line of incision in the lumbar region. On microscopic examination, it was found to be a medullary hypernephroma, although here and there islands of cells from the adrenal cortex were found lying among the medullary cell groups and within the veins of blood sinuses. On examining the portion of the growth which had involved the renal vein, it was found, strange to say, that it was composed entirely of cortical cells. This suggested, of course, that the metastatic formations through the venous system should be composed entirely of adrenal cortex cells. Unfortunately, permission to hold an autopsy could not be obtained.

REMARKS.

The origin and true nature of hypernephromata has

4. Boston Medical and Surgical Journal, vol. cxlix, No. 23, p. 611.

5. Journal of Medical Research, vol. vii, No. 4, 1902, p. 421.

brought forth a great deal of study and discussion. For a long time these peculiar tumor formations usually growing from the kidney, were classified with lipomata, adenomata, sarcomata, etc. In 1883, Grawitz, after a great deal of careful study, announced that they were of adrenal origin. At first, many pathologists took exception to Grawitz's view. The careful and extensive microscopic examinations have, however, practically convinced all of the correctness of his theory. Their origin from adrenal structure has been further substantiated by chemical examinations.[6]

In our study of the secondary growths of hypernephromata, we have been able to verify most of the statement made by Croftan concerning the chemical diagnosis of this tumor process.

There are some who maintain that hypernephromata should be classified either with sarcomata or carcinomata. According to their structure, they can be classified with neither, although it is true that some of them resemble the one and some the other.

Until we have more definite information as to the exact origin of the adrenal body, we can not classify them with either of the above from the standpoint of histogenesis. Clinically, they resemble sarcomata, in that they are very vascular and frequently lead to hemorrhage, and in that metastasis occur most commonly through the blood vessels. As tumor formations, however, we prefer to classify them in a group by themselves.

DISCUSSION.

DR. W. G. MACCALLUM, Baltimore—We have had a number of cases of this sort, showing the same type of metastasis. I think we can all agree that such tumors rise sometimes from the cortical portion, sometimes from the medullary portion. I would like to ask whether Dr. Bierring has made any investigations into the presence in his cases of the chromophile reaction spoken of by Kohn, which is present in the medullary cells in the adrenal. I think that I can agree with him as to the more frequent metastasis by way of the blood vessels also, but I do not regard the numerous secondary growths in the liver as best explained by a retrograde embolism. A case occurred recently at the Johns Hopkins Hospital in which there were no changes in the lungs whatever, but there were nodules in the liver in such number that almost its whole volume was occupied by them and it would be very difficult to explain such a transportation of cells into the uttermost parts of the liver by a retrograde embolism. It seems to me more plausible that the small masses of the tumor cells had gone through the capillaries of the lungs. We must usually think of the tumor cells as slipping through almost as readily as the larger cells of the blood; otherwise I think we can rely on the explanation given by Benno Schmidt, in which he brings out the fact that while tumor masses present in the capillaries of the lungs often produce no effects there, they may nevertheless give rise to further transportation of cells and set up the formation of nodules elsewhere.

DR. WILLIAM ROYAL STOKES, Baltimore—This method of preparing specimens seems such a striking one for class demonstration that I would like to ask Dr. Bierring if he can tell us just how he prepares these specimens.

DR. WALTER L. BIERRING—The method is as follows: Dissolve one ounce of gelatin in eight ounces of water by heating in hot water bath, after which add the white of one egg to clarify; filter and add eight ounces of glycerin; just before using add formalin to make 2 per cent. solution and imbed specimen in the same, in a large Petri dish. After the mixture hardens the edges are sealed with paraffin. The microscopic section is mounted on the cover in Canada balsam. In answer to Dr. MacCallum I will say that in one case the chromophile reaction test was made with a positive result. In the other cases it was not made. We usually made the chemical tests first described by Croftan. With reference to the secondary metastases in the liver, I agree with Dr. MacCallum, that it seems more natural, probably, that they do take place by way of the general circulation, but in the one case there was an absence of secondaries in the lungs and such an involvement of the renal vein and of the hepatic vein that we concluded it illustrated more a method of retrograde embolism rather than a metastasis by way of the systemic circulation.

DR. FRANK B. WYNN, Indianapolis—I have not had the good fortune of Dr. Bierring and some of the others in having seen any of these growths at necropsy. I have, however, during the past year, collected a series of adrenal tumors from the ox that have been instructive to me, and in connection with those observations I want to make reference to the fact of the extreme frequency of supernumerary adrenals in the lower animals, notably the ox. A very intelligent inspector of one of our large establishments found that I was interested in the question of conditions of the adrenals, so whenever he found an adrenal gland of the ox that he suspected to have anything wrong with it, he saved it. The result is that during the past year I have obtained some fourteen tumors of the adrenals. The striking thing, however, which is pertinent in the discussion of the paper before us, is the extreme frequency of the supernumerary adrenals in the ox. You can go any day into a large establishment where cattle are slaughtered and find an adrenal gland with a supernumerary attached to it, sometimes attached by a fibrous band of considerable length, half an inch or more. Reasoning by analogy, it would seem probable that, if the same number of human beings were examined carefully, we might find supernumerary adrenals frequently in the human subject also. It should not be forgotten that these bodies are difficult to dissect out and may be easily overlooked. If we take it for granted that they are more frequent in the human being than commonly supposed, we can understand how that might readily explain the frequency with which hypernephromata develop.

DR. JOSEPH MCFARLAND, Philadelphia—I can scarcely imagine that supernumerary adrenals are so frequent in the human kidneys as in bulls. I have rather carefully examined the adrenals of all the autopsies that I have made, amounting to probably over a thousand, and I have never seen a distinct supernumerary adrenal body in man.

DR. W. M. L. COPLIN, Philadelphia—My experience with ectopic adrenal tissue and hypernephromata must be rather unique. We have looked carefully for the tumors of this kind, but our record of 2,600 laboratory examinations contains but few instances. I could not say just at this moment how many of these examinations are of neoplasms of the kidney. In all that number (and many of the reports include autopsies) there are records of but five tumors of this group and two of them are from old specimens that have long been in the museum or in the anatomic collection of the college. I do not think that ectopia of the adrenal tissue is so very common in man as would be indicated by some of the observations recorded today. Then, again, many times atypical or ectopic tissue may be extremely difficult to identify. Some of you may recall that a year or so ago Dr. Radasch reported an instance of ectopia of the adrenal and collated the cases reported up to that time. In a case referred to by Dr. Radasch, I confess that, with the specimen before me, I had some hesitancy in deciding that it contained adrenal tissue; the microscope showed that it did. There are two other points to which I would like to call attention: First, the possibility of hepatic metastases resulting from the entrance of cellular masses to the portal circulation rather than through the pulmonary. It seems to me rather odd that in these cases we should get a growth involving the liver and missing the lung and organs of the systemic circulation except the liver. Is it not possible that the portal circulation may receive an aberrant or collateral blood supply? In some instances there may come to the liver, through some abnormal circulatory connection with the adrenal, a possible source of infection that is not present in the ordinary run of cases.

6. A. C. Croftan: THE JOURNAL A. M. A., Jan. 10, 1903.

There is another point with regard to the relation of the peritoneum to implantation and hematogenous infections. A few years ago I observed a rather extraordinary specimen of carcinomatosis in which there had been widespread hematogenous dissemination of the growth. In that case there were pearly masses of neoplastic tissue in the lung and on the surface of the pleura; one could see very readily that even the small groups of cells quickly passed through the thin serosa; so that while the passing of the peritoneum over the growth would be quite conclusive evidence that infection was lymphogenous or hematogenous, the absence of serosa over the nodule would not be proof of implantation. Within the last two years I exhibited before the Philadelphia Pathological Society an extraordinary instance of metastasis of mammary carcinoma. In that case many of the masses would be found with branching fragments of the serosa running directly into the nodule. There were many of them small, not larger than a pinhead and even not elevated. A microscopic examination would show that the serosa entered the periphery of the nodule in a fragmentary way. In the extension of both carcinoma and sarcoma from one serosa to another, from the peritoneum to the pleura, or the reverse, or to the pericardium, or the reverse —the plugs of neoplastic cells may pass directly through the communicating lymph channels which recently have been studied most carefully by Küttner; in such cases the extension is directly through, the neoplasm appearing on the surface of the two serosæ like a collar button, the shank of which corresponds to the intradiaphragmatic part of the growth and on either side is the new tissue covered by the serosa.

THE CHARACTER OF CHROMATOPHORES.*

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PHILADELPHIA.
(From the Pathological Laboratory, University of Pennsylvania.)

In regard to the origin of the cell masses characteristic of pigmented moles and in regard to the origin of the melanotic tumors of the skin, different views are still held. A number of pathologists believe in the epithelial origin of nevi and of melanotic tumors; others assume a mesodermal origin. The latter view is especially represented in the work of Ribbert.[1] He believes the melanotic tumors to be composed of in part modified chromatophores. All chromatophores he regards as of common mesoblastic origin, in accordance with the previously formulated theory of Ehrmann.[2] In view of this divergence of opinion, it might not be without interest to inquire what the actual stand of our present knowledge of the chromatophores is, and if it supports the view of Ehrmann and Ribbert. Without attempting to give a complete review of the literature on this subject, I shall limit myself to a brief résumé of the more important results obtained and of some of the problems still to be solved, mainly considering here the chromatophores found in the skin of vertebrates.

They may be found in the epidermis, as well as in the cutis of different classes of animals. The situation, size, number and ramification of processes of the chromatophores vary in different animals. In the cutis of the frog, e. g., there is usually a well-marked layer of chromatophores, which are generally much larger and frequently more branched than the epidermal chromatophores, whereas the guinea-pig cutis has no well-developed cells of this kind, and its pigment is distributed irregularly in masses or clumps; sometimes only small granules are found. The dermal chromatophores of the frog are separated from the epidermis by considerable connective tissue and the epidermal chromatophores are usually situated higher up in the epidermis than is the case in the guinea-pig. Different classes of animals and different structures show typical differences in regard to their chromatophores.

Let us consider if chromatophores, which frequently have a relatively small cell body and an extremely large number of irregularly drawn out ramifications, are cell entities or not. This has been denied by Schwalbe, who believed that the branched processes of chromatophores are nothing but the interstices between the epithelial cells, filled with pigment. It was also denied by Kromayer, who interpreted the ramifications of chromatophores as parts of protoplasm, belonging to a number of epithelial cells. The epithelial fibrillæ may extend continuously through several cells. This may be especially marked during certain stages of the regeneration of the skin. Kromayer believed the pigment to be derived from such fibrillæ. That chromatophores with their ramifications correspond to individual cells becomes, however, clear, if we study the regeneration of the pigmented guinea-pig skin. There the chromatophores appear first as a kind of ameboid cells, not yet very much pigmented. Under these conditions it can be seen that the processes are extensions of the protoplasm of one epithelial cell.

If, then, the chromatophores are cells, what kind of cells are they? Let us consider the chromatophores of the epidermis. The former view held by Aebi and others that they are ordinary leucocytes or connective tissue cells which migrated into the epidermis has been entirely abandoned. At present it is a question whether they are of epithelial origin or a specific variety of mesodermal cells growing from the cutis into the epidermis, or distributing their pigment from the cutis into the epidermis. The origin of chromatophores in developing skin has among others been traced in the larvæ of the frog by Kodis,[3] and in the developing feather by Post[4] and Strong.[5] They found epithelial cells gradually taking on the character of chromatophores. In mammals, only recently Maurer[6] described the first appearance of pigment in the skin in typical epidermal cells. Indeed, if we examine specimens of a developing feather, there can be no doubt that the chromatophores are transformed epithelial cells. In a similar way the chromatophores of the regenerating skin of the guinea-pig have at first a distinctly epithelial character. We see here clearly that the epidermal chromatophores regenerate in conjunction with the other epithelial cells. We find mitoses in chromatophores mainly at such places where other nearby epithelial cells divide mitotically. The same stimulus affects both kinds of cells in the same manner. The regenerating epidermis carries at a certain stage its pigment almost exclusively in chromatophores. Gradually the other epithelial cells become pigmented; the cutis beneath the regenerating epithelium receives its pigment later than the regenerating epidermis; an ingrowth of mesodermal cells into the epidermis can with certainty be excluded.

Similar conditions are found in the regenerating skin

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pathology and Physiology, and approved for publication by the Executive Committee: Drs. V. C. Vaughan, Frank B. Wynn and Joseph McFarland.

1. Ribbert: Lehrbuch der allgemeinen Pathologie. Leipzig, 1901.
2. Ehrmann: Bibliotheca Medica Kassel, 1896.
3. Kodis: Epith. u. Wanderzelle in der Hautdse Froschlarvenschwanzes, Archiv f. Anatomie u. Physiol., 1899.
4. Post: Ueber normale u. pathol. Pigmentierung der oberhautgebilde, Virchow's Archiv, vol. cxxxv.
5. R. M. Strong: The Development of Color in the Definite Feather, Bull. Mus. Comp. Zool., vol. xl, 1902.
6. Maurer: Die Epidermis und ihre Abkömmlinge, Leipzig, 1895, and Festschrift f. Haeckel, Jena, 1904.

of frogs. The chromatophores in the regenerating skin are epithelial cells, which regenerate simultaneously with other epithelial cells. They divide mitotically, where and when ordinary epithelial cells divide by mitosis. In the first two weeks of regeneration they frequently lose their processes and have thus the appearance of highly pigmented epithelial cells which are often pushed into the upper rows of the thickened regenerating epidermis, and are then cast off with the other cells. In this case, too, the corium beneath the regenerating epithelium is for a long while entirely devoid of pigment cells and an immigration of dermal cells into the epidermis can be excluded. During mitosis the arrangement of the pigment in guinea-pigs and frogs is similar to the distribution of the pigment in ordinary pigmented epithelial cells; we find it in a concentric layer around the chromosomes. Chromosomes and pigment are separated by a light zone. The chromatophores, however, contain more pigment than the ordinary dividing epithelial cell. The processes may be present or may have disappeared during mitosis. In one respect, however, the regenerating skin of the frog differs markedly from the regenerating guinea-pig skin. The latter shows a great regularity in the casting off of the old pigment and in the formation of new pigment. Distinct periods can be distinguished during this process. The skin of the frog is entirely devoid of such a regularity.

A question of some interest is, if during regenerative processes in the adult skin, chromatophores are newly formed from ordinary epidermal cells. I am inclined to believe it, because in transplanted black skin of the guinea-pig there exists a period when almost all pigment has disappeared and only a number of chromatophores can be found which are slightly pigmented and have relatively small processes. It is not unlikely that they represent ordinary epithelial cells in the process of transformation into chromatophores, though it is difficult to give the actual proof of such a new formation.

If, then, the epidermal chromatophores are of epithelial origin, what is the origin of the dermal chromatophores? It is usually assumed that they are modified connective tissue cells. Kromayer believes that they are also derived from the epithelium. Such an origin has lately been made very probable in the case of the chromatophores of the choroid which Lewis found to be derived from the pigmented epithelial cells of the optic cup.

In the regenerating frog-skin I observed repeatedly that the epithelial chromatophores may be pushed into the underlying coagulum, under conditions in which the reverse process, namely, an ascending movement of dermal chromatophores into the epidermis, could be with certainty excluded. The possibility of an epithelial origin of the dermal chromatophores is also suggested through Maurer's[8] investigations in the formation of the cutis in amphibia. The question, however, can not as yet be regarded as decided. Whatever origin the dermal chromatophores may have, it is certain that during regeneration of the frog-skin they behave very differently from the epidermal chromatophores. The latter cover the wound very soon, moving with the regenerating epithelium, while the former seem to be extremely inert; chromatophores do not appear in the cutis until after two or three weeks, though regeneration begins here at the end of five days. In fact, the subepidermal part of the wound is filled with connective tissue before any chromatophores are to be seen in it. The chromatophores of the dermis were not yet regularly arranged at the end of thirty-four days. They were missing at some places and at other points they were situated deeper than is the case normally. They appear occasionally in increased numbers at the margin of the wound. In a similar way the pigment of the cutis of the regenerating skin of the guinea-pig appears later than that of the epidermis, as was mentioned above.

If the epidermal chromatophores originate in the epidermis, it might nevertheless be possible that the epidermal pigment is carried into the epidermis through the chromatophores of the cutis. This, however, can be excluded, because in various classes of vertebrates the first pigment was found in the epithelium, and not in the cutis.

One more question remains to be considered. What are the relations of the epidermal chromatophores to the other epithelial cells? Pigment can originate in ordinary epithelial cells. The retinal pigment is an instance. According to Schwalbe, during the change of hair of Putorius erminea chromatophores can not be found in any epithelial or connective tissue structure. In this case the pigment is found in ordinary epithelial cells. On the other hand, there exists a great probability that in some other cases the epidermal chromatophores do actually transfer the pigment granules or rods to other epithelial cells. This seems to take place in the feathers of some birds. There the pigment is at first only found in chromatophores which send out long processes. These processes come in contact with epithelial cells which may be situated very far from the cell-body of the chromatophore. These cells become now gradually pigmented, the pigment being located around the cell nucleus on the side toward the process of the chromatophore. In the skin of the frog or of the guinea-pig it is not possible to see similar clear connections between the function of the chromatophores and the pigmentation of ordinary epithelial cells. During regeneration and transplantation of the pigmented skin of the guinea-pig there is a period when the old pigment and most of the old epithelial cells have been cast off. Simultaneously with the new basal pigment there appear only slightly pigmented chromatophores. It is very difficult to decide if the first basal pigment appears only in chromatophores or also in ordinary basal epithelial cells. Very soon, however, the epithelial cells contain pigment also at a time when the chromatophores are yet very little pigmented. Under these conditions it appears not likely that the chromatophores provide the pigment of the other epithelial cells. Furthermore, the basal epithelial cells contain pigment around the whole periphery of the nucleus; the pigment of all other epithelial cells is found only at the outer side of the nucleus toward the horny layer. The pigment is arranged in a similar way in the cells of the feathers, where, in all probability, the pigment is carried into the cells through the chromatophores. The fact that the basal cells show a different distribution of the pigment seems to me to point to the conclusion that the pigment originates here, just as well as in the chromatophores, which have also a basal situation. This view seems to be supported by the fact that pigment is located around the nucleus. From Arnold's investigations it appears as though just at this place synthetic processes, as, e. g., the formation of fat, would take place. At least here are the first fat droplets to be found. Lillie showed that at the same place oxydative processes do probably take place. As we shall see presently, it is likely that oxydative processes play an important part in the formation of the pigment of the skin It

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might, therefore, be suggested that here pigment is formed through the metabolic processes of the cell, if it were not for the fact mentioned above, that a similar position of the pigment at one side of the nucleus is to be found in cells which very probably do not produce the pigment, but receive it from other sources. How these two apparently opposing facts can be reconciled will have to be determined by further investigations. We may, however, state that, with great probability, the relations of the chromatophores to the ordinary epithelial cells is somewhat different in different classes of animals.

The pigment originates in the epidermis, and the production of melanin is a peculiarity of certain epithelial cells which preserve this function if they are transplanted to a place where formerly non-pigmented cells were present. The melanin in the chromatophores is probably derived from the proteid substances of the cell and is very likely not directly produced from a derivative of the hemoglobin for the following reasons:

1. The sulphur content of the melanin is very large.[7]

2. From the melanin decomposition products can be obtained similar to the ones obtained from the melanoidins, which themselves can be produced with the aid of acids from proteid substances.

3. Tyrosin, a radical, present in cell proteids, can, with the aid of an oxydative ferment tyrosinase, be transformed into substances similar to the melanin of sepia, and similar, probably, to the melanins of vertebrates. It is, therefore, not unlikely that the production of the pigment of the chromatophores is due to a fermentation causing oxydative and condensation processes in certain decomposition products of cell proteids.[8]

That the presence of chromatophores and of pigment in the cells is not without consequences is shown by the difference in the regenerative power of the white and pigmented skin of the guinea-pig after transplantation. Whether this difference is due to the different degree of absorption of light, and perhaps of other rays, is yet to be investigated. The theory that all chromatophores are derived from one specialized kind of mesodermal cell, the melanoblasts, I believe I have shown to be without foundation.[9]

DIABETES MELLITUS.

REPORT ON A CASE, INCLUDING A NEW METHOD OF PROGNOSIS.*

(From the Physiological Laboratory of the University and Bellevue Hospital Medical College.)

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AND
GRAHAM LUSK,
NEW YORK CITY.

A diabetic patient with a low acidosis and with no trace of albumin in the urine, when put on a meat fat diet, showed a constant ratio of dextrose to nitrogen in the urine. The ratio was Dextrose: Nitrogen=3.65:1, and is the same as that found in dogs made diabetic with phlorhizin. This ratio was uninfluenced by fat digestion or by fat metabolism. The sugar was, therefore, derived from proteid alone, and rose and fell with the proteid metabolism as indicated by the amount of urinary nitrogen. The patient died five weeks later.

There was apparently a complete intolerance for carbohydrates.; 85 per cent. of starch and 80 per cent. of levulose fed were excreted as sugar in the urine. Withdrawal of the carbohydrates from the diet and the continuance of the same proteid-fat quantity in the food had no effect on the excretion of nitrogen in the urine, which indicates a complete intolerance for carbohydrates.

A sufficient quantity of meat and fat for the body's needs was readily assimilated. Only 4 per cent. of the available energy of the food appeared in the feces.

The urea elimination was normal. The sulphate excretion ran normally proportional to the proteid metabolism. The phosphates ran abnormally high, as is usual in diabetes.

The above research, when considered in the light of other work to be found in the literature, enables us to formulate a new clinical method of prognosis in diabetes, using the D:N ratio for this purpose.

The procedure is as follows: If a diabetic be put on a meat-fat diet (rich cream, meat, butter and eggs), and the twenty-four-hour urine of the second day be properly collected,[1] the discovery of 3.65 grams of dextrose to 1 gram of nitrogen signifies a complete intolerance for carbohydrates, and probably a quickly fatal outcome. We have called this the fatal ratio. A lower relation between dextrose and nitrogen means that some proteid sugar may be burned. Such a tolerance for sugar may be increased on a meat-fat diet, so that the D:N ratio falls, or the sugar in favorable cases may entirely disappear from the urine.

DISCUSSION.

DR. VICTOR C. VAUGHAN, Ann Arbor—This paper shows: 1, that proteid overfeeding may easily be done in diabetes; 2, that the dietary as given by von Noorden is not the proper dieting; 3, that one must estimate the total nitrogen; 4, urea determinations are not sufficient; 5, he finds here that his relation between "D" and "N" remains constant simply because they both come from the same thing. They both come from the proteid of the food, and, consequently, where one increases the other increases; when one decreases the other decreases, and the relation remains the same. Some years ago I published some dietary tables for diabetes and I have followed them ever since. The plan consists in cutting down the carbohydrates gradually, generally taking bread only, because we can estimate the amount of carbohydrate in bread easily, taking say 600 grams during the first day and cutting it down a hundred grams a day (supposing that there is about 55 per cent. of carbohydrates in wheat bread), and making good the calories not with nitrogen but with fats, and (some of you will object to this, I dare say) with alcohol. I do not believe in the general use of alcohol in medicine, but I can not treat this kind of diabetes well without alcohol. Alcohol furnishes a large number of calories and one gets no sugar. Dr. Lusk has shown that there is no reason, at least at present, for believing that any of the dextrose comes from the fats. I think we have been influenced altogether too largely in this country by von Noorden's dictum on diabetes, and I think it has done us harm.

7. Abeland Davis: Journal of Exper. Medicine, vol. i, 1896.

8. Of interest in this connection is the observation of Jacques Loeb, that the disappearance of black pigment of the yolk sac of fundulus embryons can be demonstrated if there is lack of oxygen.

9. Other references to be consulted are: L. Loeb: Untersuchungen über die physiolog. Wirkungen des Sauerstoffmangels, Pflüger's Archiv, vol. lxii. L. Loeb: Ueber Transplantation von weisser Haut auf einen Defect in schwarzer Haut u. umgekehrt am Ohr des Meerschweinchens, Arch. f. Entwickelungsmech, vol. vi, 1897. L. Loeb: The Growth of Epithelium in Agar and Blood Serum in the Living Body, Journal of Medical Research, vol. viii, 1902. L. Loeb and R. M. Strong: Regeneration of Pigmented Skin of the Frog, Amer. Jour. of Anatomy, vol. iii, 1904.

* Abstract read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pathology and Physiology, and approved for publication by the Executive Committee: Drs. V. C. Vaughan, Frank B. Wynn and Joseph McFarland.

1. The urine should be collected so that an early morning hour (before breakfast) terminates the period for one day. This is necessary, because the sugar formed from eaten proteid is eliminated before the nitrogen belonging to the same. The long period between the evening meal and breakfast allows for the elimination of both constituents.

DR. WINFIELD S. HALL, Chicago—I indorse the recommendation that Dr. Lusk has made, that these difficult cases of nutrition, the proper treatment of which necessitates more or less extensive and expensive outlay in time and apparatus involved, extensive and expensive chemical analyses day by day and week by week, perhaps, for a long period of time, should, by common consent of the medical profession, be sent to institutions thoroughly equipped for such work, namely, the larger hospitals associated with laboratories where such work can be properly done. Dr. Lusk's paper demonstrates among several other things that, in very nearly every case that can be handled in that way from the first days, the diagnosis and prognosis can be early and surely made; and then, with this accurate, day by day watching of the case there is a step by step improvement.

DR. GRAHAM LUSK—It is known that alcohol helps the digestion of proteids in the stomach when fat is present. I might add that this patient was put on alcohol as soon as he passed out of the laboratory. The low acidosis also enabled us to dispense with the customary administration of sodium bicarbonate, which was freely allowed after the conclusion of the experiment.

A CASE OF DARIER'S DISEASE.

PSOROSPERMOSE CUTANEE FOLLICULAIRE VEGETANTE OR KERATOSIS FOLLICULARIS (WHITE).*

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CHICAGO.

In the last fifteen years, since this affection became known under the above names, there was published in all thirty cases.[1] Cases under this heading demonstrated or published by Mansuroff, Zeleneff, Kroesing, Savill, Graham, Little, Sokoloff, Bogroff and Huber lack many essential features, and can not therefore be considered as cases of this affection.

HISTORY OF THE AUTHOR'S CASE.

Our case, which represents the thirty-first of all cases, and the sixth of the cases occurring in the United States, concerns a young man of 25, born in a small town in the south of Wisconsin. His parents are German, and claim that they do not know of any skin disease occurring in their family except the present case. They themselves have always enjoyed excellent health, as did their two daughters of 17 and 18 respectively, and their younger son of 14. The patient passed through an attack of measles in early childhood, but was otherwise well, except for accidental injuries. He was vaccinated at the age of one year, and soon afterward the first pimples were noticed on the scalp, on the face and behind the ears. They gradually and slowly increased in number until the age of 12, when they spread over the chest and back, some appearing on the arms, and very numerously on the legs. His condition grew steadily worse, especially on the legs, where three years ago the first signs of horny growths appeared. His nails became thick and broke at the free edges. Itching was scarcely noticed. He enjoyed good health, but was annoyed by the dark coloring of his face.

The patient appears strong and healthy. His hair is black, his eyes dark brown, and the whole integument rather dark. Accessible mucous membranes and internal organs normal; inguinal glands slightly enlarged. On close approach to the legs, a slight odor was perceptible. On inspection of the integument, the following symptoms were noted: The scalp showed a thick growth of healthy hairs, which appeared as if imbedded in a thick layer of dirty white brittle masses, after the removal of which the scalp looked as if worm-eaten. The face was intensely dark and greasy. The hand, on gliding over it, felt a rough surface. This roughness was caused by minute horny elevations, closely aggregated. Over the brows, around the alae of the nose and on the chin were found elevated brown papules, forming plaques. These papules were of pinhead size or slightly larger, the greater number of these showing a central horny mass.

The ciliary margins of the upper eyelids were beset with sparse horny nodules pierced by ciliæ, resembling ciliary blepharitis. Behind the ears, in close proximity to the insertion of the auricles, there were located dark, almost black, tumor-like formations, fissured in different directions resembling papillomatous growths. These plaques were composed of numerous coalescing papules, with central horny plugs.

On the nape of the neck, along the hair line, on the back in the suprascapular regions and along the spine, as well as over the sternum, numerous densely arranged papules of sizes to that of a split pea were found. They were either of the color of the surrounding skin, or yellow or brown, containing a central horny plug, which latter could with difficulty be pressed out, leaving behind a crater-like opening, the base and margins of which looked as if torn. Nowhere was there found a pink or red areola around the papules. Intermingled with the papules were comedones.

Other parts of the trunk showed scanty single lesions of the above-described type, but the axillæ and inguinal regions were free.

The upper extremities showed here and there a scattered lesion. The dorsa of the hands and of the fingers

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* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Cutaneous Medicine and Surgery, and approved for publication by the Executive Committee: Drs. H. W. Stelwagon, J. A. Fordyce and H. G. Anthony.

1. The following is a list of these thirty cases:
1. Darier et Thibault: Annales de Dermatologie, July, 1889, and Thèse de Paris, 1889.
2. Darier: International Dermatological Congress, Paris, 1889. (These two cases were subsequently published in the International Atlas of Rare Skin Diseases, Part 6, 1892, II.)
3-4. White: Journal of Cutaneous Diseases, June, 1889, and January, 1890.
5-8. Boeck: Archiv f. Dermatologie, vol. xxiii, p. 857, 1891.
9. Lustgarten: Journal of Cutaneous Diseases, January, 1891.
10. Bussi and Miethke: Monatschefte f. Dermatologie, vol.. xii, p. 9, 1891.
11. Boeck: Second International Dermatological Congress, 1892. Ref. Archiv f. Dermat., vol. xxiv, p. 1000.
12. Schwimmer: Archiv f. Dermat., vol. xxiv; Ergänsungsheft, p. 76, 1892.
13. De Amicis: Second Internat. Dermat. Congress, 1892.
14. Schweninger und Bussi: International Atlas, Part 8, 1892, II. (One of these two herein published was previously reported by Bussi and Miethke, under 10.)
15-16. Pawlof: Archiv f. Dermat., vol. xxv. Ergänsungsheft, p. 195, 1893.
17. Fabry: Archiv f. Dermat., vol. xxvi, p. 373, 1894.
18. Mourek: Ibid., vol. xxvii, p. 361, 1894.
19. Jarish: Ibid., vol. xxxi, p. 163, 1895.
20. Neumann: Wiener klin. Wochenschrift, No. 3, 1896.
21. Bowen: Journal of Cutaneous Diseases, June, 1896.
22. Hallopeau et Darier: Annales de Dermatologie, 1896, pp. 737-743.
23. Bowen: Ibid., 1898, p. 6.
24. Melle: Giornale Ital. delle Malattie, etc., 1898, p. 365. Ref. Annales, p. 506, 1899.
25. Jacobi: Verhandl. d. Deutschen dermat. Gesellschaft, VI Congress, p. 406, 1898.
26. Caspary: Festschrift, Kaposi, p. 199, 1900.
27. Ehrmann: Wiener med. Presse, No. 46, 1901.
28. Hallopeau et Fouquet: Annales, p. 226, 1902.
29. Schwab: Inaugural Dissertation, Freiburg i. Breisgau. Ref. Annales, p. 627, 1903. (This case seems to be identical to that of Jacobi.)
30. Weidenfeld: Archiv f. Dermat., vol. lxiv, p. 275, 1903.

were covered with numerous flat warts, and the nails showed longitudinal striation, and were split at their free margins. The genitals and circumanal regions were free from the affection.

The lower extremities, down to and including the aspects of the knee joints, showed scanty lesions, while below the knees, encircling the tibiæ, were irregularly-shaped, uneven, warty, tumor-like masses, yellowish-brown in color, some of them covered by firmly adherent crusts, which were loosened at their margins, thus exposing a red oozing basis. The attempt to lift the crusts reminded one very vividly of an attempt to lift the thick, rough bark from a tree when that bark is loosened at the edges.

Within the lesions there appeared crater-like openings in the rounded elevations, which resembled those on the trunk, but were larger. On the anterior aspect of the left tibia, from a thick, hard crust there emerged a form resembling a cornu cutaneum.

Between these large plaques, and around them, were scattered small papular lesions. The dorsa of the feet and the posterior aspects of the external malleoli were covered with numerous flat, small warts. The nails of the toes showed no abnormal condition. It is necessary

Fig. 1.—Magnified 150 times. A. Heart-shaped, horny plug in hair follicle. B. Granules of eleidin. C. "Corps ronds." D. Thickened stratum granulosum. E. The rete forming a broad band (under a horny plug), and a corresponding flattening of the underlying papillæ. F. Sebaceous glands. G. Fissures or lacunæ in the rete. H. A few layers of rete covering the papillæ beneath lacunæ.

to add that the solitary papules everywhere were quite firm to the touch, while the above-mentioned aggregations over the eyebrows, in the naso-genial furrows, on the chin and behind the ears were comparatively soft and greasy to the touch. A plug squeezed out from one of the papules, examined in aqua ammoniæ showed a number of epithelial cells, most of them containing a nucleus and bodies which, as the so-called "grains," will be considered later.

HISTOLOGY OF THE TISSUES.

For examination, a number of papular lesions from the back and a piece of papilloma-like mass from behind the ear were excised, fixed in Mueller's fluid plus formalin and imbedded in paraffin. The sections were stained in hematoxylin, eosin, carmin, Unna's alkaline methylene blue and other solutions.

The horny layer, thickened as a whole, shows nodulations which represent horny plugs. These are mostly confined to the upper part of the hair follicles, and consist of densely-arranged lamellæ, or a horny network. These plugs are frequently heart-shaped and constricted at the upper part, where they are grasped by the surrounding epidermis, as a precious stone is held in its setting (Buzzi and Miethke) (Fig. 1, A). In the ducts of some of the sweat glands a dense horny peg is found reaching down to the level of the granular layer. There are horny plugs to be found independent of both these appendages, especially in sections of the papilloma-like formations, but the plugs confined to hair follicles are in the majority. In the upper strata of many plugs are granules of eleidin (Fig. 1, B), while in the deepest layers of densely lamellated ones numerous so-called "grains" are noted. The same are found at the bottom of plugs in certain ducts of the sweat glands. The stratum granulosum surrounding these plugs, especially at their upper portion, is thickened (Fig. 1, D), but is entirely wanting beneath most plugs showing grains. The rete shows various conditions. In some places, beneath the plugs, it forms a broad band with an inferior convex

Fig. 2.—Magnified 150 times. A. Elongated papillæ. B. Gap or lacuna in the rete. C. "Corps ronds." D. Club-shaped papilla covered by two lowermost layers of the rete. E. Infiltration.

border (Fig. 1, E), with nearly a complete absence of interpapillary processes. There is correspondingly a total flattening of the papillary body.

At the sides of many of the plugs the rete projects with considerably elongated processes into the corium. In other places beneath the plugs the rete is reduced to a few rows of cells, being thus atrophied. The cells of the rete under the plugs have undergone considerable changes, showing vacuolation, and having lost, in the lower portion of this layer, their intercellular union. For that reason gaps or fissures are seen separating two, or at most three, lower layers from the rest of the rete. (Fig. 1, G; Fig. 2, B; Fig. 3, C.) These latter layers (Fig. 1, H, and Fig. 2, D) cover closely the underlying papillæ and are for the most part in a normal condition.

In some places, where long plugs have fallen out, the cavity communicates directly with the aforesaid clefts in the rete. Throughout the rete are found numerous "corps ronds," one form of Darier's so-called pseu-

sperms. These show various sizes, and are by far larger than normal rete cells. They contain a nucleus which is surrounded by a translucent zone, separating it from a granular coat of protoplasm. The whole is enveloped in a transparent membrane which, in the smaller forms, is doubly contoured. These bodies (Figs. 1, 2 and 3) are found throughout the rete, but most numerously near the lacunæ or gaps, and near and within the stratum granulosum. Their size diminishes the further up they are situated, which is due to the transparent membrane becoming thinner, as well as to the diminution of the enclosure. In the stratum granulosum some of these cells have lost their membrane, and appear shrunken and homogeneous, with a faintly stained nucleus. These round or oval bodies represent the "grains," the second form of Darier's psorosperms. The "grains" found in the plugs show the same characteristics.

In some places of the rete, especially in the middle layers, some "corps ronds" are surrounded by flattened cells (Fig. 3, A), which look as if compressed. In a few places two or three "corps ronds" are united, and the translucent membrane is flattened at the site of juncture. (Fig. 3, B.) The cells of the rete, at its lower portion, show a large mass of finely granular pigment. The corium does

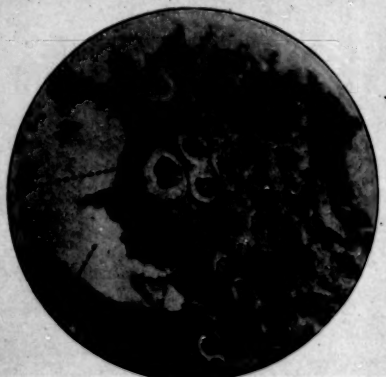

Fig. 3.—Magnified 500 times. Shows very numerous "corps ronds" near the gap C in the rete. A. Flattened epithelial cells surrounding "corps ronds." B. Flattening of the membranes of "corps ronds" situated in close proximity.

not show very marked changes. The elastic network is normal, and there are found foci of infiltration (Fig. 2, E), which consist of round cells, some plasma and a few mast cells. An eosinophilic cell was also occasionally found. The papillæ beneath certain plugs are totally flattened (Fig. 1, E); under others they appear club-shaped (Fig. 2, D), while at the sides of the plugs they are elongated. Especially is this so in the lesions presenting plaques, where they are very considerably elongated (Fig. 2, A), and, together with the proliferation of the rete, present a picture quite similar to that found in true papilloma.

The sebaceous and sweat glands appear normal, except that the ducts of the sweat glands occasionally contain plugs. Thus the clinical as well as the histologic conditions correspond entirely to the requirements of a true case of Darier's dermatosis.

COMMENTS ON THE HISTOLOGY.

Although the "corps ronds" and "grains," the so-called psorosperms, do not represent micro-organisms, as first claimed by Darier, nevertheless credit is due him for his original work in that this malady is known as a dermatologic entity.

The first to examine thoroughly the nature of these bodies and to pronounce them as atypically cornified epithelia was Bowen, whose views were corroborated by most of the later writers, and at last accepted even by Darier.

The presence of these bodies is essential, together with the other details, to determine histologically the diagnosis, inasmuch as there are found similar conditions in other dermatoses where these bodies are absent. This fact has led some observers to class cases under this heading which do not belong to it. If we compare, for instance, sections of lichen planus hypertrophicus,[2] we encounter similar conditions. Thus we find horny plugs in follicles, in the ducts of sweat glands, and independent of both. There are also gaps in the rete, vacuolation of cells

Fig. 4.—Lesions on the posterior aspect of the legs.

of the latter and a cellular infiltration of the cutis similarly arranged, but the typical bodies found in Darier's disease are absent. It is interesting to note that clinically the above mentioned form of lichen occurs in hyperkeratotic plaques, with depressions filled with horny masses.

Another interesting point to be considered is the question of the follicle being the principal seat of the affection. White, whose first case was published at about the same time as Darier's, found all the eruptions confined to the follicles, and, therefore, he called his case keratosis follicularis. In Darier's cases the same condition was found, and he therefore added to the original name the adjective "folliculaire."

White's cases were examined microscopically by Bowen, who found, in these, as well as in his own two cases, pub-

2. The Journal A. M. A., Jan. 11, 1902.

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lished later, the hair follicles the favorite seat of the plugs. But various other authors found the horny plugs more frequently independent of the hair follicles, and in Buzzi's and Schweninger's cases the ducts of the sweat glands showed the majority of horny plugs.

In serial sections of papular lesions of our case the hair follicles contain most of the plugs; only here and there one is found in the sudoriferous ducts, while in the sections from the plaques the plugs occurred also independent of either structure, but the majority in the hair follicles.

Since the cells above described, the "corps ronds" and the "grains" did not prove to be micro-organisms, the original term for this affection proposed by Darier, viz., "psorospermosis," had to be abandoned. Inasmuch as hyperkeratosis and parakeratosis are main features of the process, White's name, "keratosis," could be substituted, although the adjective "follicularis" should be omitted, because in quite a number of cases published the follicles were not the favorite seat of the affection. In suggesting, therefore, a new term somewhat descriptive, embracing characteristic features, it would not seem inappropriate to add the name of Darier as well as that of White to the term "keratosis," and to call the disease "keratosis Darier-White."

Fig. 5.—Lesions on the anterior aspect of the right leg.

Notwithstanding the fact that the etiology of this affection is unknown, it seems that heredity plays a certain rôle. Thus White's two cases are represented by father and daughter. Of Boeck's first four cases, three are those of father and two sons. Mourek's case is the father of Ehrmann's case. In Jacobi's case the mother of the patient was undoubtedly afflicted with the same disease.

This dermatosis offers the greatest resistance to all treatment. The present case was treated by applications of sulphur, ichthyol, resorcin and salicylic acid, and while under treatment the condition slightly improved. The face was treated with the *x*-ray exclusively, which benefited him so far that nothing remained of the eruption, the whole face becoming perfectly smooth, but the pigmentation remained as intense as before.

Owing to a severe accident the patient had to discontinue the treatment. Three months after the last application the father reported that the face still retained the improved condition, and March 29 of this year, nearly six months after the *x*-ray was discontinued, he presented himself for further treatment. His face was now free from eruption, there were but few lesions on the temple, and the pigmentation had nearly disappeared. The effect of the *x*-ray on the other lesions will be reported in due time.

103 State Street.

DISCUSSION.

DR. MORTIMER A. MOSES, New York City—I have a case of this disease under observation at Mt. Sinai Hospital, the same case Dr. Lustgarten described some 14 years ago. In this particular case the treatment has been varied without much success. The patient has become cranky and does not submit to treatment well. We tried the *x*-ray on him once, but he claimed that he felt so weak and debilitated after the treatment that we had to desist, consequently we do not know how that agent will act. Lustgarten told me recently that he still considers the cause of the trouble coccidia and does not think it proved that it was a degeneration of the cells.

DR. A. RAVOGLI, Cincinnati—I have had several cases of the same type as those reported by Dr. Lieberthal. After a while I began to study similar formations and found the same round bodies in lichen planus and other affections, and I accepted the opinion of Unna that these round bodies are noth-

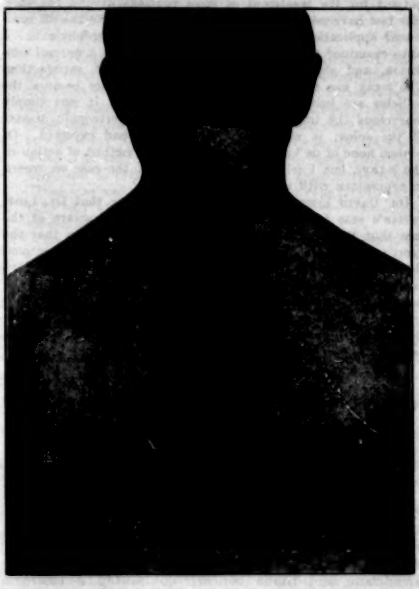


Fig. 6.—The lesions on the back.

ing else than nuclei of the epithelial cells in a state of degeneration, and probably two, one on top of the other, which accounts for their peculiar appearance.

DR. L. DUNCAN BULKLEY, New York City—I would like to ask the gentleman who spoke of the case at Mt. Sinai Hospital if it was a man about 55 years of age.

DR. MOSES—Yes, sir.

DR. BULKLEY—We have all had him under observation, and some time ago I lectured about him as a case of psorospermosis. I have had a few of these cases, and recently one, not yet published, in the Skin Hospital. She was with us for many months, nearly a year, and the interesting part I wish to speak about is the result of the *x*-rays on certain portions of the disease. She had the eruption very well marked on the forearms and around the line of the hair running up into the scalp, and has been exhibited a number of times. We all agreed as to the diagnosis. Her palms and soles became enormously affected; the soles of the feet were simply a mass of epithelial growths, forming prolongations with fissures be-

tween them, one-fourth inch in depth, and so excessively sore and painful were they that she was bedridden for a number of months, and could not step on the floor. This was before the hospital had an *x*-ray apparatus. She was treated in various ways, and time and again the whole affair was curetted out, under ether, down to raw flesh. She repeatedly asked us, "Can't I be scraped again?" It would afford her relief from distress of the feet for months. After the scraping the feet were treated with all kinds of antiseptics. I think ichthyol gave the most relief; something like a 50 per cent. solution was used, also bichlorid, permanganate of potash and various other things. From what I had seen of the *x*-ray I promised her that it would give her relief. She had a series of applications to the feet, fairly strong (I can not now tell the duration or distance), and within two or three months her feet cleared up entirely, so that she not only put on shoes and walked around the ward, but left the hospital, and comes now as an outpatient for the treatment of some portions around the face. Her feet have not troubled her since; I think she has an occasional application of the ray to the feet for prophylaxis. I have examined the feet, and the epidermis is in a normal condition, and she now has perfect comfort and satisfaction. The *x*-ray has not been applied around the face because the follicles are just in the line of the hair, but it was simply marvelous the influence exerted on the hypertrophic disease of the soles; it was beyond anything I had expected. Of course, none of us knows the reason or the method of action of the *x*-rays, but I felt that I ought to put the case on record in connection with this paper.

DR. DAVID LIEBENTHAL.—I am glad to hear that Dr. Lustgarten's case is still under observation. I am aware of the fact that Dr. Lustgarten still adheres to his opinion that the "corps ronds" are micro-organisms, although it has been conclusively proven that they contain keratohyalin, and, therefore, can only be considered as epithelial cells. I am cognizant of the case of Dr. Ravogli, which was reported before the Eleventh International Congress, showing some similarity to the affection under discussion. In reply to Dr. Bulkley, the case here reported is now published for the first time.

REPORT OF A CASE OF VINCENT'S ANGINA AND STOMATITIS.*

G. C. CRANDALL, B.S., M.D.
ST. LOUIS.

This infection of the throat and mouth, as described by those who have reported cases, is characterized by a membranous, ulcerative process, quite painful, but with slight systemic reaction—the lesions, especially of the mouth, usually healing slowly; the secretion, pseudomembrane and tissue beneath containing a fusiform bacillus associated, as a rule, with a spirillum.

As comparatively few cases of Vincent's angina have been reported in this country, the following case will be of interest:

History.—Patient, male, single, 23 years old, medical student, family history good, always having been well except for an attack of measles and of typhoid fever some years ago. No venereal disease. He had never suffered from sore throat nor sore mouth of any kind, and his teeth were unusually good.

The first indication of the disease which he observed appeared one morning at breakfast when he noticed that swallowing hot coffee caused some pain in the region of the left tonsil. Looking at his throat he found it somewhat congested on the left side. During the following day it became gradually worse, so that the mere act of deglutition was very painful, much more, however, when swallowing anything hot; the tonsil, soft palate and uvula becoming more congested. The second day a small diphtheritic spot was observed on the upper anterior border of the left tonsil and the pain increased somewhat.

The spot was about one-fourth inch in diameter, and did not enlarge much during the six days it was present. It was covered by a grayish-white, friable pseudo-membrane, which could be easily removed, leaving a slightly depressed bleeding surface, over which membrane would again form in a few hours.

The fourth day of the disease he had a dentist clean his teeth, and the following day the disease appeared along the margin of the gums and between the teeth, the gums rapidly receding from the teeth, and the infection extended in places over the gums to the buccal surface, especially about the last molar teeth. Wherever the infection extended it had the appearance of the primary spot on the tonsil; ulceration, accumulation of pseudo-membrane, congestion of surrounding mucous membrane, bleeding of the ulcerative surface when disturbed, and pain. The bleeding of the gums was very annoying, and with the pain prevented him from eating anything which it was necessary to masticate. With the extension of the infection to the gums, the breath became very foul, due to decomposing blood and membrane about and between the

Photomicrograph of bacilli and spirilli of Vincent with other organisms as seen in smear taken from gums, stained with carbol-fuchsin, magnified 1,000 times.

teeth. This unpleasant symptom continued to some extent until the disease entirely disappeared.

During the early part of the attack there was a slight increase in salivary secretion, but of no consequence. There was some swelling of the lymphatic glands near the angle of the jaw on the side where the infection first appeared; later there was slight swelling and tenderness of the lymphatics of the submaxillary region after the gums were invaded.

Throughout the course of the attack there were only slight constitutional symptoms; temperature was raised one-half to one degree during first few days, after which it was normal. The patient became somewhat debilitated because of his inability to take the usual amount of food, but continued attending his college work without missing a day. He drank liquids, and ate only bland soft food neither hot nor cold.

Treatment.—On the third day the patient began treatment, applying a 10 per cent. silver solution without apparent effect. On the fourth day the spot of the tonsil was touched with pure carbolic acid, followed by a gargle which consisted of 1 to 1,000 bichlorid in 2 per cent. carbolic solution. This relieved the throat at once, but had little effect on the

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Stomatology, and approved for publication by the Executive Committee: Drs. E. A. Bogue, Alice M. Steeves and M. L. Rhein.

infection of the gums, which later was relieved by chlorate of potash in solution, and better in the form of tablets, which patient dissolved in mouth frequently, expectorating the saliva. The tablets were used to the end of the attack. The throat symptoms cleared up in a week, but the lesions about the gums resisted treatment much longer, showing a tendency to recur, apparently because of the infection between and about the teeth which was so inaccessible to the local remedies used. While the throat was well in a week, the gums showed traces of the disease for six weeks.

Bacteriology.—A smear was made from the tonsil on the fourth day, first drying the spot with cotton to remove the mucus from the surface. This showed the bacillus of Vincent and a spirillum, the latter appearing identical with the *Spirochæta dentium* (Cohn), which is common in the mouth. Both organisms were abundant, with very few other germs present. Smears taken from the margin of the gums showed both organisms, but with numerous other organisms from the decomposing material about the teeth.

The organisms stained readily with carbolic fuchsin, also with gentian violet, and with Loeffler's methylene blue. The bacillus took the stains, as a rule, much better than the spirillum, although the latter took the gentian violet fairly well.

Efforts to make cultures of the organisms on the common media, gelatin agar and blood serum were all negative.

The bacilli were distinctly fusiform, averaging large, but varying in length from 8 to 12 microns, and in thickness from ½ to 1 micron. The spirilli were 36 to 40 microns long, and of quite uniform thickness, about 1/3 micron (see illustration).

The organisms were found abundant during the first few days of the disease; later only a few could be found.

In this case the disease was at first confined to the throat, but was quickly and thoroughly inoculated into the gums by the irritation incident to cleaning the teeth.

The dentist was not aware of the infectious process in the throat; however, this case illustrates the necessity of caution on the part of the dentist in so simple a procedure as cleaning the teeth when any acute infectious process exists about the throat or mouth; at most, then, only the teeth and not the gums should be disturbed; every precaution should be taken to avoid irritation of the mucous membrane, since the slightest abrasion is inoculated with the infected secretion.

When we have an acute infectious process of the throat or mouth which has a tendency to spread, it would be well to confine the diet of the patient to bland liquids and soft food requiring no mastication, thus avoiding, so far as possible, all irritation of the mucous membrane.

So far as known, no other cases developed, although the patient was associating with other students constantly, avoiding, however, using any common drinking cup.

Briefly reviewing the literature, we find that in 1896 Vincent[1] reported a form of ulcerative angina due to these organisms. In 1897 Bernheim[2] reported a series of thirty cases which conform in general to this disease, although he did not feel certain that the fusiform bacilli and spirilli found were the cause. Vincent[3] again, in 1898, reported fourteen cases. In 1901 Nicolet[4] and Morotte described the morphology of the organism. Mayer[5] in 1902 reported a typical case, with clinical data. In 1903[6] Fisher reported two typical cases, with description of organisms and illustrations. Hess[7] in 1903 reported two forms of the disease, the croupous form, due to the fusiform bacilli, and the diphtheritic form, in which both the bacilli and the spirilli are present. In 1903 Anchi[8] called attention to the possibility of considerable tissue destruction incident to the disease. In 1903 Tarruella[9] discussed the clinical and bacteriologic features of what he terms the ulcerative-necrotic angina of Vincent. In 1903 Conrad[10] reviewed the literature to date quite thoroughly and gave some clinical reports.

Most of the observers emphasize the tendency of the disease to run a protracted course, especially when the gums are affected.

The differential diagnosis will come, as a rule, within three diseases, syphilis, diphtheria and Vincent's angina, which can usually be readily cleared up by the history of the attack and a microscopic examination of the secretion from the ulcerated surface.

4287 Olive Street.

1. Annales de l'Institute Pasteur, 1896.
2. Deutsche med. Woch., 1897.
3. Bull. de la Soc. des Hôpitaux, March, 1898.
4. Revue de Medicine, April 10, 1901.
5. Jour. Am. Med. Sci., 1902, p. 187.
6. Ibid., 1903, p. 438.
7. Deutsche med. Woch., vol. xxix, No. 42.
8. Gaz. Hebd. d. Sci. Med. de Bordeaux, 1903, vol. xxiv, p. 555.
9. Rev. de Med. y Cirug. Barcel., 1903, vol. xvii, p. 180.
10. Arch. f. Laryngol. u. Rhinol., Berlin, 1903, vol. xiv, 525.

DISCUSSION.

DR. VIDA A. LATHAM, Rogers Park, Chicago—I had the good fortune to see this specimen which, I understand, is only the third ever reported in America. From a dental or stomatologic point of view it is of value, showing that dentists must recognize this disease. I had one case some time ago, but it was never recorded, as I was not sure at the time what it was. The patient's lips became almost black from the disease, and in consequence it was called gangrenous stomatitis. There was considerable pain and great nervous prostration. The only way of identifying the disease is by the microscopic examination.

DR. E. C. BRIGGS, Boston—I think I must have had a similar case, but no microscopic examination was made. When I first saw the case I thought it must be syphilis. There was excessive ulceration of the mucous membrane with severe pain. The patient was a man of character and courage, and I did not feel that he was exaggerating when he told me how intolerable his days and nights were. At another time I shall have a microscopic examination made for diagnosis. The case cleared up after a while, during which time I treated him vigorously.

DR. LATHAM—I would suggest in these cases the use of orthoform tablets for pain on deglutition.

PATHOGENY OF OSTEOMALACIA OR SENILE ATROPHY.[1]

EUGENE S. TALBOT, M.S., D.D.S., M.D., LL.D.
CHICAGO.

The fact that pathology at most implies a disturbance of balance which causes a conflict of physiologic processes is nowhere more evident than in osteomalacia. The current error which assumes that any process aiding disease must be innately nosologic interferes with diagnosis and treatment alike. The clinical and pathologic work done on osteomalacia has been vitiated by the view-point just mentioned. Osteomalacia occurs from so many nosologic states as to indicate that it arises from a process physiologic in character, but perverted to nosologic ends by anything which disturbs the balance struggle for existence between the structures.

Bones do not grow in the ordinary sense, since the bone cells can not multiply. Apparent growth of bone

1. In "Interstitial Gingivitis or So-called Pyorrhea Alveolaris," I called attention to a form of bone absorption, osteomalacia or senile absorption. Very little was said at the time, for the reason I wished to do more research work before bringing the subject before the profession. That paper was read before the Chicago Academy of Medicine, Dec. 12, 1899.

is caused by destruction of bone already formed and by production of new bone. The production of new bone is one, as Minot (Embryology) points out, first to degeneration of the ossifying cartilage. Cartilage begins to be differentiated earlier than any of the mesenchymal tissues except the blood vessels, and perhaps the smooth muscle cells. Cartilage undergoes a degenerative change preparatory to ossifying. This is one of the many instances in the embryo where degeneration of a particular structure is necessary for advance of the body as a whole. There are, as Minot points out, two stages in the life-history of cartilage. The first (in which the cells are large) is the earlier stage, and represents the maximum of development, while the second (in which the cells are shrunken and fatty) represents a later stage with more or less degeneration. In what is called ossification of cartilage (an erroneous term) the cartilage undergoes complete degeneration and disappears. Bone is derived always by direct metamorphosis of embryonic connective tissue or of embryonic cartilage and of periosteum. Bony tissue, as already remarked, does not grow except by additions to its surface. To a certain extent it depends on a balance between the metamorphosis of embryonic connective tissue, the formation of cartilage and the function of the osteoblasts, which build up and the osteoclasts, which break down.

These four conditions occur in fracture. The tissue around and between the bone ends is provisional callus. The periosteum forms the external callus and medullary tissue the internal callus. Ossification of internal callus is performed by the osteoblasts, which develop, and osteoid tissue that later by calcic deposits undergoes a change into true bone. This bone formation is often preceded by tissue of the embryonic connective type. The osteoclasts absorb bony substance in excess. Imperfect work by the osteoblast or excessive formation would reproduce in a fracture the condition of tissue which occurs in osteomalacia. Osteomalacia hence depends on the removal of inhibitions on the physiologic balance between formative and destructive functions.

Inhibitions are exercised through the nervous system. It is not surprising, therefore, to find fully developed osteomalacia connected by many links with trophoneuroses, in which similar local bone changes occur. Prominent among these are paretic dementia and locomotor ataxia. Various changes of the bones and joints, as J. G. Kiernan[2] has pointed out, occur in paretic dementia, either in the direction of osteomalacia, of premature and excessive ossification or hydroarticuli (thickening of the articular extremities of the long bones). Similar conditions were found previously by Charcot, Ball and J. K. Mitchell in locomotor ataxia.

In other conditions, where like though lesser disturbances of the physiologic balance of the struggle for assimilable nutriment occur, osteomalacia and its converse likewise develop. In pregnancy such conditions are present. So far as the woman is concerned, pregnancy, as Harriet Alexander[3] has shown, is a pathologic disturbance of balance hitherto existing in the organism. In consequence, nutrition and assimilation are increased, while elimination is decreased. In pregnancy, therefore, occurs an autointoxication which may express itself in major phenomena like eclampsia, or minor phenomena like the destruction of the teeth. From the influence of this last type exercised on bone growth occur not only trophic disturbances, like osteomalacia, but also, as Rokitansky[4] long ago demonstrated, osteophytes (of the cranial bones in particular). This condition, as Ducrest has shown, appears and disappears under pregnancy. While Hohl and Virchow have claimed that this condition bears merely a coincidental relation to pregnancy, corroboration of its frequency by French, German and Italian pathologists demolishes this criticism.

Osteomalacia (the halisteresis ossium of Kilian) consists anatomically of an osteitis and periosteitis, in which the perfectly hard bones are decalcified and replaced at first by lamellar connective tissue; finally this passes centrally into the round granular medullary cell. The medullary spaces and haversian canals increase in size, the bone corpuscles partly disappear, but in part become shorter and their processes smaller. The more complete the substitution of connective tissue the more flexible the bones become. In osteomalacia corea they are, as Winckel[5] remarks, almost as yielding as wax and not soft enough to be cut. In fully developed osteomalacia, therefore, the cartilage formation has been replaced by connective tissue.

Winckel has shown that the conditions under which puerperal osteomalacia develops are essentially those causing degeneration. By improvement of hygienic surroundings of Bavarian peasant women, his father was able to lessen the amount of osteomalacia. It does not, therefore, form a single nosologic species. It is clearly connected with the trophic factors regulating bone growth, bone repair and bone existence. In its essence it is, like cancer, a reversion to embryonic conditions. While to some extent lower, the conditions found in osteomalacia are essentially those of the immature seasquirt in its prevertebrate period. It is a general law of biology that structures in certain parts of an organism retain for the benefit of that organism lower characteristics. This being the case, there should be one structure in the body which would give a clew to the etiology and early pathology of osteomalacia. Such a structure is the alveolar process. This is situated on the superior border of the inferior maxilla and on the inferior border of the superior maxilla. While usually considered a part of the maxillary bones, the alveolar process should be considered separately. Its structure, embryology and functions differ completely from the structure and functions of the maxillary bone. The alveolar process is composed of soft, spongy bone of a relatively cancellous structure. As early as the eleventh week of intrauterine life calcification of the deciduous teeth commences, and by the twelfth week calcic material is quite abundantly deposited. The alveolar process being soft and spongy, molds itself about the sacs containing the crowns of the teeth and along their roots after their eruption, regardless of position in the jaw. While the alveolar process has grown rapidly, it has developed up to this time just enough to cover and protect the follicles while calcification of the jaw proceeds. When the crowns have become calcified and the roots have begun to take in calcic material, absorption of the border of the process takes place in the order of eruption of the teeth. When the teeth have erupted, the alveolar process develops downward and upward with the teeth until it attains the depth of the roots which, in most instances, extend into the superior maxillary bones in the anterior part of the mouth and the upper and lower teeth rest at a point in harmony with the

2. Journal of Nervous and Mental Diseases, 1878, p. 253.
3. Pediatrics, January, 1901.
4. These de Paris, No. 1, 1844.
5. Text-book of Obstetrics (American edition), p. 472.

rami. The depth to which they penetrate depends on the length of the roots and the alveolar process, and this in turn depends on the length of the rami. The incisive fossa, the cuspid eminence and fossa give evidence of this externally. The sockets are lined with extensions of the process, thus making its upper border irregular.

When the temporary teeth are shed, the alveolar process is absorbed to make room for the eruption of the permanent set. The crowns of these, being larger than those of the temporary teeth, require more space and the process must enlarge to accommodate them. It then is rebuilt about the roots of the teeth on a much larger scale. When the temporary teeth are lost the alveolar process is reabsorbed. It is hence developed twice and absorbed thrice, provided the second set of teeth is lost. The process is a very thin, unstable structure, naturally well nourished with blood vessels. As the skull and brain are gaining in the struggle for existence between the face, jaws, skull and brain, the jaws with the alveolar process must decrease in size with advance. This fact and the changes just described render the process a doubly transitory structure. For this reason it is very susceptible to metabolic changes, to mineral and vegetable drugs and poisons, as well as to changes in temperature and climate. This is, in part, due to the readiness with which checked elimination elsewhere finds exit through the mouth and nose. The great supply of blood vessels in the alveolar process plays a part in determining elimination.

Should man live long enough, and should the physiologic process of involution set in, his second set of teeth would disappear as a consequence of osteomalacia of the senile atrophy type. The lower vertebrates are called *Polyphyodontia*, because there is a continuous succession of teeth, not a separation into two sets. In some mammals this condition persists. The pachyderms and rodents (which are connected embryologically) present phenomena analogous to that of the *Polyphyodontia*. In the rodents, especially the nut-eating rodents, continuous growth occurs in the incisors as they are worn down. Should one of the incisors disappear, the opposing one so grows as to interfere with the gnawing powers. Many a squirrel has thereby lost its life. In the elephant not more than three teeth are in use at a time. Those worn down are shed, while new teeth are added.[6] Thus the whole number of teeth are not in place at one time. In other pachyderms, like the hyrax, similar conditions are found. Among the edentates, tooth conditions form a natural transition to the *Sauropsidæ* and *Ichthyopsidæ*. A curious link also occurs in the *Monotremata*, where the duck-bill has deciduous teeth during youth, which are afterward absorbed to make way for horny plates. Judging from the conditions found in the toothed birds, the same result occurred at a phase in evolution of toothed birds from reptiles. In man, however, this degenerative process (involving absorption of the alveolar process and loss of the teeth) is continuously present in a latent way. The alveolar process is, therefore, more subject to change from altered metabolism, due to trophic disorders of nutrition than other structures. Osteomalacia or senile absorption occurs with greater rapidity, and produces more decided change in the alveolar process than in other bones. Causes which would not affect bone structure elsewhere markedly derange it.

While osteomalacia may affect the alveolar process at any period of life after the eruption of the first set of teeth, it does not usually occur until the period between twenty-five and thirty-five. Before this the osseous system is in its constructive state and lime salts are being deposited rapidly. Later in life the constructive stage is complete, and material sufficient only to repair waste is deposited. At the periods of stress metabolic changes are most active—during puberty and adolescence (fourteen to twenty-five), during the climacteric (forty to sixty), when uterine involution occurs in women and prostatic involution in men and finally during senility (from sixty upward), when the disease is always present to a greater or lesser degree. While in allied conditions men are most influenced in this disorder, the sexes seem to be affected about equally. Here the influence of pregnancy comes into play. Pregnancy disturbs the physiologic balance hitherto existing, especially along the line of assimilation and elimination. The well-known dental effects of pregnancy (whose underlying cause affects the alveolar process) are due to this factor. This is purely a constitutional affection.

Among the causes are non-elimination of toxic substances, whether due to autointoxication, to bacterial action or to metallic and vegetable drugs. Disorder or disease of any excretory organ (kidneys, bowels, skin or lungs) will produce the most marked effect, firstly, on the constitution of the blood, and secondly, on the alveolar process, with resultant osteomalacia.

The urine, as Bouchard has shown, contains each day in a normal individual sufficient toxins to cause death if not excreted. This condition is markedly increased after prolonged nervous explosions, like those of epilepsy or hysteria. This was pointed out thirty years ago by Meynert, who demonstrated that the status epilepticus (condition of rapidly recurring convulsions) was due to the accumulations of a proteid body in the system. The status epilepticus is preceded by a decrease in toxins in the urine and succeeded by an increase. This is likewise true as to the influence of non-elimination by the other excretory organs (bowels, lungs and oral cavity), as well as to the non-exercise of its poison-destroying power by the liver. Non-elimination, moreover, interferes with ordinary digestive functions, and hence increases its own extent. Another factor in autointoxication is production of toxic products in such quantity as to prevent destruction by organs like the liver and consequent elimination, since a product to be properly eliminated must be changed to a particular chemical type. Among the factors which affect both these elements of elimination is the power over growth and repair exercised by the nervous system. In part, this influence is exerted through control of blood supply by the vasomotor nervous system and in part by that direct control of the nervous system over tissue change, which is known as its trophic function.

Both influences are affected by nervous strain. Sudden emotion may, as Bichat demonstrated decades ago, produce marked defects on bile secretion and may occasion jaundice. Cases are far from infrequent in which emotions like jealousy produce a mimicry of gallstone colic in neuropaths. Murchison, Christison and Thompson have traced attacks of biliary colic to jealousy. Other liver changes from sudden nervous disturbance, whether of mental type or not, are not rare. As mental impressions are communicated to the central nervous system purely through mechanical changes in the nerves, such influence must be purely material in operation. As the brain exercises a checking influence on the operations of the liver, these mental influences produce two effects. The mental shock increases

6. Tomes' Dental Anatomy, p. 405.

the checking action of the central nervous system on the local ganglia of the liver and destroys the checking action of the liver ganglia, and in consequence these go too fast, resulting in their exhaustion. Either of these conditions interferes with the poison-destroying action of the liver, and accumulation of waste products is the result.

What is true of the liver is true of the other organs. This is especially noticeable, as Tuke points out, in regard to the kidneys. The action of mental anxiety or

No. 1.

suspense in causing a copious discharge of the pale fluid is familiar enough to all, especially to the medical student about to present himself for examination, the amount being in a pretty direct ratio to his fear of being plucked. The frequency of micturition may, however, arise from nervous irritability of the bladder without increase or even with diminished secretion. Still, the action of the skin is usually checked, the extremities are cold and the kidneys have to pump off the extra amount of fluid retained in the circulation. Elimination of the

No. 2.

substance usually separated from the blood is diminished, as compared with the aqueous character of the whole secretion. The odor may be affected by the emotions in man as in animals. Prout is of the opinion that mental anxiety will produce not only non-elimination, but also change in the chemical character, as indicated by odor and otherwise. Disturbances in the medulla produce, as Claude Bernard long ago showed, a markedly pale, excessive urine. These disturbances often arise from intellectual strain or emotional shock. The influence of emotional states on secreting processes and thereby indirectly on autointoxication states, is illustrated in the fact long ago pointed out by Tuke that pleasurable emotions increase the amount of gastric juices secreted, the opposite effect being produced by depressing passions. Beaumont found in a case of gastric fistula that anger or other severe emotions caused the gastric inner or mucous coat to become morbidly red, dry and irritable, occasioning at the same time a temporary fit of indigestion.

The influence of fear and anxiety on the bowels is as well marked as that on the bladder and kidneys. Apart from muscular action, defecation may become urgent or occur involuntarily from various causes. The increased secretion from the intestinal canal may occur from fear, and in some cases from the altered character of the secretion itself. While in this respect the influence of fear may be inconvenient in man, it naturally assists escape in some animals, as the skunk.

Emotions powerfully excite, modify or altogether suspend, as Tuke has shown, the organic functions. This influence is transmitted not only through the vasomotor nerves, but through nerves in close relation to nutrition and secretion. When the excitement is of peripheral

origin in sensory or afferent nerves, it excites their function by reflex action, so that as emotion arises it may excite the central nuclei of such afferent nerves, and this stimulus be reflected on the efferent nerves, or it may act directly through the latter. Pleasureable emotions tend to excite the processes of nutrition, hence the excitement of certain feelings may, if definitely directed, restore healthy action to an affected part. Violent emotions modify nutrition. Various forms of disease originating in perverted or defective nutrition may be caused primarily by emotional disturbance. Emotions by causing a larger amount of blood to be transmitted to a gland increase sensibility and warmth, and stimulate its function or directly excite the process by their influence on nerves supplying the glands. Painful emotions may modify the quality (i. e., the relative proportion of the constituents) of the secretions.

Imperfect elimination of effete matter from the lungs is a fruitful source of autointoxication. The more marked forms are those of tuberculosis, in which there is great debility and in which there is greater waste than repair. Self-poisoning is continually going on, and will continue until death. The chest capacity for the

inhalation of pure air is almost *nil*, hence the blood is improperly oxygenated and soon ceases to convey nutriment to the tissues. Eighty per cent. of criminals who die of tuberculosis in prisons have undeveloped chest walls. Degeneracy, therefore, cuts quite a figure in the rôle of autointoxication. Degenerates with contracted chest walls are, however, more frequently found. Many undeveloped individuals in every walk of life for this reason have tuberculosis. People with undeveloped chest walls and chest capacity may not have tuberculosis and yet may suffer from autointoxication. Those who have had pneumonia with adhesion and who are thus unable to oxygenate the blood are subject to this disease. Asthmatics and hay-fever patients suffer from autointoxication and alveolar absorption. When the skin is overstrained as to excretion through the kidney and bowel overstrain, the lungs are forced to take on increased work with imperfect oxygenation as a result. This is noticed in the odor of the breath in Bright's disease and in the air-hunger of diabetes, etc. In nerve-strain states and in the condition described by Albu, not only do excretory organs suffer, but the secretions of those glands, like salivary and buccal glands, are so altered as to become irritants. These

excretory conditions not only result on autointoxication states, but are modified by trophic nerve function alterations. By trophic changes are meant such tissue alterations as occur in morbid conditions from disordered function of the centers of nutrition. Peripheral as well as central may be involved. The well-known law of wallerian degeneration of nerve fibers is an illustration, the posterior spinal ganglion acting as a trophic center for the fibers of the posterior root in the cord itself. Trophic action may, therefore, be peripheral, though in extensive changes, as a rule, central (cerebral or spinal) origin should be looked for.

The constitutional result of acute and chronic infections and contagions is apt to be an autointoxication plus the action of the germ toxin. All the exanthemata have at times been followed by wasting or necrosis of the alveolus. Here the condition is notably symmetric, and accompanied by disorders of the osseous system elsewhere. The same is true of la grippe and tuberculosis. The well-marked disorder known as Riggs' disease has been charged by Pierce, Kirk, Rhein, Robin and Magitot to the direct influence of an arthritic state (gouty and rheumatic) and regarded as a special type of arthritic manifestation. The alveolus is clearly vulnerable to the toxins of many infections. It is likewise quickly affected by some autotoxic influences from disordered metabolism. Its vital resistance to these agencies is less than that of other tissues. It is the earliest sacrifice when these or any toxins disturb the harmony of the organism.

A cause other than the action of toxins exists for implication of these parts. Whenever tissue waste, whether local or general, exceeds repair there is trophic change. This latter depends directly on disordered local or general nervous functions. Trophic alterations from the first cause appear in growth disorders of the nails and loss of hair (alopecia) after fevers, the most familiarly obvious examples of this pathologic process. Of the other type are localized atrophies, where the direct intervention of toxins can be excluded. The alveolus is liable to the first form of trophic deterioration. The influence of acute diseases on the alveolus is probably thus exerted in many cases rather than by direct infection. Where no cause has been ascertained, examination directed to this factor would probably reveal it. The general failure of the trophic centers after the prime of life (in senile states), which is attended with loss of teeth and wasting of the alveoli, is the most obvious instance of trophic failure affecting the part. Even simple anemia may thus give rise to alveolar wasting.

The more marked forms of constitutional disorders (typhoid fever, pneumonia, tuberculosis, syphilis, indigestion and pregnancy, etc.) produce intense results.

The second form of trophic failure in the alveolus is less prominent, since it generally coexists with overshadowing disturbance elsewhere, which it creates to a certain extent. Cruveiller noticed its occurrence associated with simple paraplegia, regarding it as of nervous causation. In facial hemiatrophy, local wasting of the alveolus has appeared before the disorder has involved the jaws generally. This is sometimes due to a local cause, but its occurrence and association with other neurotrophic symptoms are suggestive.

The causes which act locally to produce direct autointoxication are the toxic effects of mercury, lead, brass, uric and other acids, potassium iodid and allied agencies, acting in a similar manner to scurvy. While it is not the intention to discuss at length the toxic action of these substances, a case may be cited in illustration of

their similarity of action and results on the tissue. Garnier and Simon[1] have observed the case of a boy suffering from an obstinate enteritis. Milk was found to disagree, so a purée of vegetables and chopped meat was given. The boy improved for a while, but hematogenous jaundice occurred. On investigation the jaundice was found to be due to the action of lead on the liver, the lead having been introduced into the food through a meat-chopper. In this case, the usual symptoms of lead poisoning were absent, but through its action on the liver jaundice had appeared. Scurvy produces the same train of symptoms as the metals, through its disturbance of the metabolism.

The jaws of the hereditarily defective, whether defect be in the direction of advance or degeneracy, are fruitful soil for the development of osteomalacia. In the mouths of the congenital, deaf, dumb, blind, feeble-minded and delinquent children, osteomalacia attacks the alveolar process before the osseous system has reached its growth. Here, as a consequence of trophic change, metabolic action and premature senility, osteomalacia may occur with the first set of teeth at two years, or at any period thereafter. This may be called juvenile osteomalacia. Regulating teeth and senile absorption are predisposing causes to osteomalacia.

Osteomalacia of the alveolar process is almost as common among domestic and wild animals in captivity as it is in man. Wild animals in zoologic gardens without proper exercise, in close confinement, with impure air and fed on too easily digested food, naturally acquire autointoxication resulting in osteomalacia. This is particularly noticeable in monkeys, whose changes of environment render them very susceptible to disease, especially tuberculosis. Trophic changes and impaired metabolism are thereby so impressed on monkeys that not infrequently the first teeth become prematurely loose and drop out. The horse and cow are prone to this disease. Cattle returned to the stable after a summer's sojourn in the field, and then, being fed on a changed diet without the usual exercise of cutting grass with their teeth, undergo a reaction in their jaws, and osteomalacia results. "Cribbing" of the horse is a marked illustration of the uneasy feeling resultant on this reaction. Cattle fed on brewers' grain and slop suffer most. Dogs afford the best opportunity, however, for studying inflammation and osteomalacia among animals. Nearly every dog in the dog hospital suffers with this disease; 25 per cent. of roving curs at four years of age have the disease; 80 per cent. of eight-year-old, at least 95 per cent. of twelve-year-old and all fourteen-year-old dogs have the disease. House dogs suffer to a marked extent with osteomalacia of the alveolar process, no doubt from being trained to house cleanliness, which interferes with natural excretion, causing autointoxication and odor.

The following models show the action of osteomalacia on the jaws and teeth: Figure 1 is that of a physician thirty-six years of age. Figure 2 is that of a physician thirty-eight years of age. Both of these gentlemen are apparently in the best of health. One has slight indigestion, which is the cause of absorption; the other took calomel for malaria fifteen years previous, this being a predisposing cause. In each case all the teeth are involved both inside and out. Some of the teeth are becoming loose. There is no pus in either case. The gums are apparently healthy.

In consulting the literature on the subject I find that absorption of the alveolar process and recession of the gums have always been attributed to the severe use of the toothbrush. There are certain conditions in which the toothbrush will assist absorption of the alveolar process. These are easily observed. I refer to the position of the cuspid teeth, where they stand prominently and are the most conspicuous part of the alveolar process. The bone over the roots is as thin as tissue paper, and the slightest friction causes a low form of inflammation, which in turn produces absorption of the bone, exposing the root. The brush never, however, produces senile atrophy in other parts of the mouth.

The absorption of the alveolar process in osteomalacia is not always uniform, as sometimes only one or two teeth are involved. Local conditions modify the extent of the disease. In most cases, however, there is a gradual absorption of bone about all the teeth.

The pathology of this disease about the teeth is not unlike that of osteomalacia of the pelvis, spine and other bones of the body, as demonstrated by Hektoen, halisteresis being the principal form of absorption. Perforating canal absorption, as described by Volkmann, is very common, passing through fragments of bone. Lacunar absorption is also present, and osteoclasts are frequently found. Howship's lacunæ containing osteoclasts are found in the margin of irregular islands of bone. This form of absorption, while not always present, does not cut so much figure as halisteresis, it being much slower in its action. New osteoid tissue is rarely ever seen, since this absorption is a natural destruction of bone and is never reproduced.

Here, then, is the basic explanation of interstitial gingivitis or so-called pyorrhea alveolaris—osteomalacia or senile absorption is the underlying basis of this disease.

The preceding illustrations represent the alveolar

process of a man forty-eight years of age, killed in an accident. The teeth and bone decalcified in the usual way were prepared for the microscope. Figure 3 shows four areas of bone absorption called halisteresis (melting away of bone substance). The waste products become irritants in the blood stream, and set up a low form of inflammation in the haversian canals. The inflammation thus set up produces rapid absorption. Each of these local areas enlarges until they join. In this way large areas are produced. In the center of this illustration is seen a haversian canal with active inflammation around it. The bone is absorbed. The inflammatory process is in the trabeculæ or fibrous part of the bone. Adjoining is a large area with bone absorption, but the fibrous part of bone remains unbroken. The inflammatory process is seen throughout. At the lower border of the picture are two large areas of bone absorption. The trabeculæ are seen, with round-celled infiltration, while the center is destroyed. At the right absorption and destruction of the trabeculæ are seen to the margin of the bone.

Figure 4 shows halisteresis at two haversian canals. One area is much larger than the other. Both have

met, and the area of inflammation will be much enlarged. The trabeculæ are present and filled with round-celled infiltration.

Figure 5 illustrates a large area of absorption with destruction of the fibrous tissue to a larger extent. Around the border is seen a small amount of inflamed fibrous tissue. An artery, once an haversian canal, is also seen. About the large area are also seen three haversian canals with the inflammatory process just beginning.

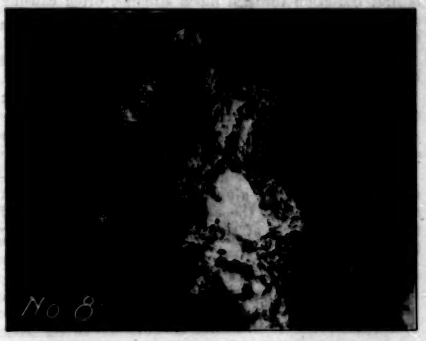
Figure 6 shows four centers of absorption at haversian canals. Through the picture may be seen dark lines running in all directions. These are vessels of Von Ebner, through which Volkmann's canal absorption takes place. A beautiful illustration of this is the canal running from one large area of absorption to the other.

Figure 7 shows the third form of bone absorption—lacunæ or osteoclast absorption. Here a large area of bone is destroyed by these large cells.

Figure 8 is a low power, showing the distribution of the alveolar process between the roots of two teeth. Very little of the bone remains. When the trabeculæ or fibrous tissue is destroyed in large areas and especially in transitory structures, it is rarely restored.

Does it not seem reasonable, therefore, that the etiology of osteomalacia of the pelvis and other bones of the body is the same as that of the alveolar process, since the pathology is the same, namely, faulty metabolism and elimination, autointoxication and drug poisoning?

A relationship exists between Dercum's disease (adiposis dolorosa) and osteomalacia, according to Pennato,[7] who finds several cases on record in which changes in joints occurred. Bone nutrition is regulated by the trophic centers markedly affected in Dercum's disease. A case of a thirty-five-year-old woman, observed by Pennato, was that whose first adiposis appeared at twenty-three. She slowly developed adiposis dolorosa and lost her teeth, except the inferior cuspids and one molar, although caries did not occur. Symptoms referable to the bones appeared almost at the outset, consisting of distortion of the right knee, curvature of the leg, some years later fracture of a clavicle and still later of the left humerus. When Pennato saw the case, the legs and thighs were semiflexed. Complete extension was impossible on the right side, on account of rigidity in the knee, with partial dislocation of the tibia inward. Such cases bear out the position that autointoxication



is the initial cause of osteomalacia, since in obesity or lipomatosis the products of autointoxication are always present in the alveolar process, and since Dercum's disease is an exaggeration of the nutritive degeneracy which tends to appear at the second dentition.[8]

RESUME.

1. Osteomalacia may and does exist for years in pelvic and other bones before the symptoms can possibly be recognized by the physician or surgeon.

2. The object of this paper is to show that osteomalacia can be studied earliest in the alveolar process.

3. The alveolar process is the most transitory structure in the body. It develops twice, and is absorbed thrice if the second set of teeth are shed. The evolution of the face, whereby the jaws are decreasing in size, with the many complications thereon resultant, renders the jaws and alveolar process increasingly transitory.

4. In the evolution from the lowest vertebrates up there has been a continuous succession of teeth (poly-

7. Medical Bulletin, April, 1904.
8. Kiernan: Alienist and Neurologist, 1900.

phyodont), as found in some selachians, a partial continuous succession as in some mammals, and a comparatively permanent set of teeth as in man. This shedding of teeth, due to a process called senile absorption, atavistic in type, takes place in everyone to a greater or less extent after forty-five years of age. Should man live in a comparatively healthy state long enough he would lose all teeth from this process.

5. Degenerate children from precocity, due to arrested development at the senile or simian period of intrauterine life, may show symptoms of this disease in connection with the first set of teeth at from six to ten years of age. A monkey which died of tuberculosis at one year had osteomalacia, which exposed the roots of all the temporary teeth, while three had dropped out.

6. Constitutional causes like autointoxication and drug poisoning are the etiologic factors. Even the mildest types of autointoxication, due to indigestion, change in climate from hot to cold, and vice versa, with corresponding change in food, giving more work to some eliminating organs and less to others, as well as to mild forms of drug poisoning, may be potent in this particular.

7. The effect of autointoxication and drug poisoning is first irritation through blood streams, often causing endarteritis obliterans. Since the arteries are terminal, irritation readily causes inflammation and halisteresis.

8. Osteomalacia is as common among wild animals in captivity as in domestic animals.

9. The influence of bacteria as a cause has not been demonstrated by Koch's law.

10. If due to autointoxication, the effete matter should be removed from the system.

11. Osteomalacia or senile atrophy is the basic explanation of interstitial gingivitis, or so-called pyorrhea alveolaris. Will not the same line of reasoning hold true of osteomalacia of the bones of other parts of the body?

ANTISTREPTOCOCCUS SERUM.*

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My investigations were undertaken with the view of obtaining information as to the identity of the streptococci found in cow's milk and their relation to the streptococci encountered in the human organism in health and disease. The reports of the agglutinating effects of the antistreptococcus sera on different cultures of streptococci by Aronson, Piorkowski and others, and the protective and curative properties of such sera reported by many investigators, raised the expectation of readily deciding on the identity of the streptococci in cow's milk as well as the possibility of throwing further light on the value and specificity of antistreptococcus sera.

Goats and rabbits were treated with repeated, increasing doses of certain streptococci isolated from cow's milk and from human beings, at intervals of a week or ten days, extending over periods of several months. The sera of these animals were then tested as to their agglutinating, protective and curative properties.

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Pathology and Physiology, and approved for publication by the Executive Committee: Drs. V. C. Vaughan, Frank B. Wynn and Joseph McFarland.

AGGLUTINATING PROPERTIES OF THE SERUM OF GOATS AND RABBITS TREATED WITH STREPTOCOCCI.

After treatment of an animal with a culture of streptococcus for several months, the serum was found to possess definite agglutinating properties, not only for the culture with which the animal had been treated, but also for cultures of streptococci derived from other sources. The serum of animals treated with cultures of streptococci isolated from cow's milk agglutinated cultures derived from human beings in about equal dilutions, while the serum of animals treated with cultures isolated from human beings agglutinated the cultures isolated from cow's milk, though in somewhat lower dilutions than the homologous cultures. Normal goat's and rabbit's serum has no definite agglutinating properties for streptococci.

With regard to the agglutinating properties of the sera of animals treated with streptococci, the results obtained coincide with those obtained by other experimenters. The results indicate that there is a close relationship between races of streptococci derived from various sources, as the human and animal organism.

THE PROTECTIVE INFLUENCE OF THE SERUM OF TREATED ANIMALS.

White mice were employed in testing the protective powers of the sera of the treated animals. A mouse received one cubic centimeter of the serum into the peritoneal cavity, and twenty-four hours later a fatal dose of a bouillon culture of streptococcus was injected intraperitoneally. The protective power manifested by the serum was of doubtful value, as it did not always protect the animal from death, though it usually served to prolong life beyond the time required to kill a control mouse. In this respect my own sera appeared to be fully as active as a sample of Aronson's serum which I tested at the same time.

Test tube experiments were made with the sera of the treated animals in order to determine whether any bactericidal powers could be demonstrated. In this respect the results were uniformly negative, as the streptococci multiplied quite rapidly in the sera. Denys and Tavel claim that the addition of fresh leucocytes to the antistreptococcus serum renders it bactericidal. Pettersson makes the same claim for the serum of animals treated with bacillus anthracis. Pettersson also claims that the leucocytes contain a specific complement for the bacillus anthracis. In the experiments which I made with the sera of treated animals to which fresh leucocytes had been added, I found that there was no definite evidence of any bactericidal action in the usual sense of the term, but that the leucocytes took up large numbers of the streptococci in vitro. From this fact it is evident that the influence of the marked phagocytosis exerted by the leucocytes accounts for the disappearance of the organisms in vitro.

THE INFLUENCE OF PROTECTIVE INOCULATIONS OF NONFATAL DOSES OF STREPTOCOCCI.

It was believed that additional information could be obtained by the inoculation of white mice with nonfatal doses of streptococci at intervals of a week or ten days, followed by the subsequent inoculation of fatal doses of the same organism, or with fatal doses of different organisms. The results obtained in these experiments were not at all uniform. While at times an apparent toleration had been established, in other instances a cachectic condition was produced which caused the animal to succumb to a smaller dose than that from

which it had previously recovered. In general, it may be stated that the injection of three or four nonfatal doses of a culture of streptococcus does not confer a definite tolerance to a fatal dose of the same, or other culture of streptococcus administered subsequently.

THE PRODUCTION OF TOXIN BY STREPTOCOCCI.

Numerous investigators have been able to demonstrate the formation of toxins in filtrates of streptococcus cultures. Schenck and von Lingelsheim especially reported finding such filtrates toxic for animals. Simon also found a slight degree of toxic action of filtrates, though Aronson claims that he was unable to demonstrate any toxic effect. In my own experiments I was able to demonstrate a toxic effect in filtrates of streptococcus cultures that were about three weeks old. In this respect my results coincide very closely with those of Schenck. Injections of 2 c.c. of the filtrate sufficed to kill mice. The large dose necessary to kill mice indicates, however, that the formation of soluble toxin, as has been pointed out by Simon, can not be the sole cause of the detrimental influence of streptococcus infection. Simon attempted to demonstrate an intracellular toxin by special methods, and claims to have been successful. I have not repeated his experiments, as they did not appear to afford any very encouraging results.

THE OCCURRENCE OF ANTITOXIN IN THE SERUM OF ANIMALS TREATED WITH STREPTOCOCCI.

The possibility of demonstrating toxic substances in filtrates of streptococcus cultures suggested the possibility of also being able to demonstrate antitoxic properties in the serum of animals treated with streptococci, and in this respect I have found that it is possible to demonstrate such an influence. For instance, if a mouse is given a cubic centimeter of the serum of an animal that has acquired an immunity against streptococci, and then, twelve or twenty-four hours subsequently, receives the fatal dose of the streptococcus filtrate, it serves to protect the animal.

THE MODE OF PROTECTION OF THE ORGANISMS AGAINST STREPTOCOCCUS INFECTION.

Studies on immunity have demonstrated that the organism protects itself in at least three different ways against bacterial infections. The mode of protection which is best understood is that against the bacteria producing soluble toxins, as diphtheria and tetanus. In these diseases antitoxins are formed in the body which neutralize the toxins produced by the bacteria, and in this manner serve to overcome the infection. In typhoid fever, cholera, dysentery and other diseases the serum of the organism acquires a bactericidal power which destroys the bacteria themselves.

The studies on streptococcus infection and the immunity that can be conferred against such infection indicate that the immunity against streptococcus is of a somewhat more complex nature than that encountered in some other infections. It is probable that in this respect the infection by the straphylococcus and the pneumococcus are closely related to that of the streptococcus. The relatively small amount of toxin produced in streptococcus cultures indicates that the formation of antitoxin is of minor importance in the immunity. Again, the absence of any evident bactericidal properties in the serum of an animal treated with streptococci indicates that the immunity is different from that which we see in typhoid fever, for instance. It is most probable that in streptococcus immunity there is a stimulation of phagocytosis which plays an important rôle in the immunity, though I am inclined to believe that this is not the sole factor involved.

CONTINUOUS ACRODERMATITIS.

AN INSTANCE WHERE IT WAS CONTROLLED BY THE X-RAY*

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SAN FRANCISCO.

Very few writers now believe eczema to be one disease. It is a vast agglomerate of diseases, out of which clinical types are being slowly segregated. In pursuance of this theory, Hallopeau in 1897 proposed[1] to remove a group of cases out of the general class of eczema, and to call the group "the continued acrodermatites." Cases constituting this group are characterized by their location on the extremities of the members, more particularly on the fingers and toes, by their incessant recurrence in the affected locality, by their not extending for a long time to any other region of the body, and by their obstinate resistance to treatment.

Three forms of this malady are described—a vesicular form, a pustular form, and a form where there are both vesicles and pustules, constituting a vesiculopustular form.

The case under consideration would fall in the vesicular group. The disease as described occurs in the adult or in the aged, and is independent of any other affection. The patients are not neurotic, and the disease may have its origin in some previous eruption or in a traumatism.

Usually the disease is confined for a long time to one locality. For example, to one of the fingers, frequently to one of the phalanges, then little by little it spreads to the other fingers and to the rest of the hand. The vesicles burst and readily heal and new ones appear. The subjacent skin is red and tumefied. When the scales fall, the epidermis is found thin, smooth and glossy, or the skin may be thickened and its natural furrows exaggerated. The nail frequently suffers in its nutrition; it loses its polish and becomes fluted; it may be transversely flattened, and have little punctiform depressions in it. Subjectively the patient complains of a burning feeling. The course of the malady is continuous, for as one crop of vesicles dries up, another appears, either in the area previously affected or at its periphery.

The affection is distinguished by rebelliousness to treatment. Hallopeau says that hitherto the only remedy found to be of avail is applications of a solution of nitrate of silver (1 to 8).

Patient.—A lawyer, aged 38, consulted me, Feb. 10, 1900, on account of a vesicular eczema of the fingers, which he said he had had for three or four years.

History.—There was a history of eczema on the maternal side. Furthermore, his maternal grandmother had Dupuytren's contraction of both palms, and two of her sons had Dupuytren's contraction of one hand. Two of the patient's sisters had neuritis of the forearms.

The patient was a tall, rather stout, well-built man, who said his general health was excellent. On questioning him

* Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Cutaneous Medicine and Surgery, and approved for publication by the Executive Committee: Drs. H. W. Stelwagon, J. A. Fordyce and H. G. Anthony.

1. Société Française de Dermatologie, 1890, 1892 and 1897. Also in Schwimmer's Jubilaeumschrift and the Revue Générale de Chirurgie et de Therapeutique, 1898. He also gives an extended description of this group in the Traité Pratique de Dermatologie par H. Hallopeau et L. E. Leredde.

more closely, he said that he had had watery passages for several months, and that the least purgative would stir up the bowels. He had never suffered from rheumatism, but he had had slight chills that he attributed to malaria, and he lived in a malarious district. He also told me that at times the movements of the bowels appeared to be undigested, and he always had a heavily coated tongue. These were the only symptoms of digestive disturbance present.

Examination.—The affection consisted of some redness, and a great number of tiny sago grain-like vesicles, with very little thickening of the skin. The disease was steadily present, but it varied in its intensity, and during an exacerbation there was some burning. The affection was confined to the fingers, and there was neither eruption nor history of eruption on any other part of the body.

Previous Treatment.—Before consulting me, the patient had tried many remedies, both independently and on the advice of physicians, and all fruitlessly. Of all the remedies tried, the best was Hutchinson's lotion prescribed as follows:

℞. Liq. plumbi subacetat.....ʒss 15
Liq. carb. detergentis.....ʒiiss 75
M. Sig.: A teaspoonful in a pint of water, to be used as a lotion twice a day.

This, however, did not cure the disease, and a great number of topical applications were employed, but the patient always returned to the use of Hutchinson's lotion. Finally this lotion began to irritate, and the disease extended to the back of the hands as spreading circles. There would be an attack of redness with watery vesicles about every four weeks. Lassar's paste, made as follows, was then tried:

℞. Acidi salicyl. .....gr. xx 1|35
Zinc ox.
Amyli, āā .....ʒss 15
Glycerini .....ʒi 30
M. Sig.: Apply as a paste.

Applied during the first part of an attack, this would irritate, but during the decline it would act very well.

Although the troubles in the alimentary tract were slight, yet eczema is so often dependent on alimentary disturbances that the patient was given a vigorous treatment in this direction also, but with no apparent effect on the disease.

X-Ray Treatment.—June 10, 1902, the patient called on me, saying that up till six weeks before the hands had been in fairly good condition, but that since that time there had been no cessation of the eruptions. He had heard much about *x*-ray curing diseases of the skin and urged me to try it in his case. He received nine exposures, extending from June 10 to July 7. On July 12 he called, suffering from a severe erythema of the back of the right hand, and a less intense one of the back of the left. It subsided under appropriate treatment, and he remained for a long time thereafter free from any trouble. Dec. 19, 1903, he again called on me. He was delighted with the treatment, and had had very little trouble in the intervening time. Once a few vesicles had cropped out; the attack was treated with the *x*-ray and quickly subsided. He consulted me on account of a slight outbreak consisting of a circle or rather a ring of induration and some vesiculation, on the ulnar side of the right index finger. There were also small patches of vesiculation with a little thickening on the ulnar side of the terminal phalanx of both middle fingers. The patient said that it was only recently that the back of the hands had become perfectly normal, as after the *x*-ray dermatitis they had had a crackled appearance on close inspection, but no vesiculation. The hair had not returned on the back of the hands with any strength at all, except as a very light down with a few strong hairs scattered in it. Nitrate of silver solution as advised by Hallopeau was not employed, as I did not know at that time of this treatment.

As regards diagnosis, this case was not pompholyx, because the vesicles rested on an inflammatory base, there never was any bullæ, the affection did not appear on the palms or soles, the attack came on at all seasons, and the patient was in excellent health. Furthermore, there was no extensive sweating. The limited area of the affected locality and the absence of bullæ would exclude both pemphigus and dermatitis herpetiformis

The question always arises if it be of any value to increase our already vast nomenclature by segregating out a class of cases that looks so like eczema. The answer to this is that any reasonable splitting up of the eczema group is permissible, and becomes very desirable when it cuts out a bunch of cases amenable to some special line of treatment.

DISCUSSION.

DR. C. E. SKINNER, New Haven, Conn.—Will Dr. Montgomery please give us the details of his technic as regards the degree of penetration of the ray, the apparatus, etc.?

DR. H. C. BAUM, Syracuse, N. Y.—I can cordially indorse what the speaker has said. In four cases treated by the *x*-ray the disease has always returned after some months, but with any other local application the disease has not been arrested.

DR. WILLIAM ALLEN PUSEY, Chicago—Leaving out of consideration the question as to whether acrodermatitis of the French is a form of eczema of the hands which is entitled to be regarded as a distinct clinical entity, I can confirm Dr. Montgomery's report of benefit in various cases of eczema of the hands which have been treated by very mild *x*-ray exposures. I have seen a good many of these cases of very chronic intractable type that have yielded to the *x*-rays.

DR. C. W. ALLEN, New York City—I have found the *x*-ray very efficient in chronic eczema, some of which I treated for years before the *x*-ray, and now with the aid of the ray these patients remain well. Chronic eczema of the hands, especially of the palms, is often markedly influenced.

DR. A. RAVOGLI, Cincinnati—I find also in my experience that in some cases of eczema, especially of a nervous character, it is difficult to bring about a recovery, but with an exposure of three to five minutes once or twice a week to the *x*-rays they yield very readily. I think this is the only way to treat this peculiar kind of eczema.

DR. D. W. MONTGOMERY—The ordinary Crookes tube was used, placed about five inches from the hand. The coil was the source of the electricity, and the sittings were of ten minutes' duration. It was a medium tube. As far as segregating these particular cases out of a group of eczemas is concerned, I think it is of value. They are particularly obstinate cases, one can do very little for them with ordinary medication, and they are unlike ordinary eczema of the hand. It is of value to be able to recognize them, so that the correct prognosis may be given, and also possibly because other observers may be able to try the value of the *x*-ray in this particular group. There are other types, the pustular type, for instance. I have never run across the pustular type, but Crocker has described it and he thinks it should be given a separate place in the nomenclature. I do not know whether these cases are really to be put in the same class with the dermatitis repens of Crocker; some have thought they should. I do not know how the dermatitis repens of Crocker would answer to the *x*-ray.

TETANUS.

ITS PERIOD OF INCUBATION AND ITS PATHOLOGY.

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While I am not engaged in the special work of a surgeon, I have, on account of the various interesting features presented, often been tempted to place on record a certain case of tetanus treated a number of years ago. In view of the fact that the annual visitation of this disease has been brought on through the Fourth of July celebrations, and since the subject of the pathology as well as the treatment has assumed considerable prominence, and as THE JOURNAL of the American

Medical Association, June 18, 1904, page 1625, requests reports of cases of tetanus, I herewith comply with that request.

On account of the bearing which this case may have on the pathology, especially the latent period or the power of storing up by the nervous system of the specific toxin, I desire to draw attention to the special article in THE JOURNAL for June 18, 1904, entitled "The Prophylaxis and Treatment of Fourth of July Tetanus," which says: "It must be remembered that when a patient develops tetanic spasms, which is the earliest time at which tetanus can be diagnosed, the disease has been in progress from five to twelve days as a rule. During that time the bacilli have first multiplied, then produced toxin, and lastly, probably requiring a considerable portion of the incubation period, the toxin has been diffusing along the axis cylinders of the motor nerves and accumulating in the motor ganglion cells until concentrated enough there to give rise to spasms."

And also in another portion of the same article: "If we inject diphtheria toxin or snake venom into an animal, symptoms appear in a very few hours at the most, whereas, in a guinea-pig, it may be twenty-four hours or more before tetanic manifestations appear. This delayed action was very puzzling, and many hypotheses were advanced to explain it. During the past year what seems likely to be the correct explanation has been advanced by Meyer and Ransom. From their experiments it would seem that tetanus toxin does not reach the spinal cord through the blood stream, but by slowly passing along the axis cylinders of motor cells from their terminations. Apparently the myelin sheath acts as a quite impervious membrane, and the toxin enters at the end of the neuron, where it is not provided with this sheath. Sensory nerves do not transport the toxin to the cord. The toxin enters the nerve endings from two sources; the first is at the site of the infection where the toxin is most concentrated, and this probably explains why tetanic spasms frequently begin in the vicinity of the infected part or are most marked at this point. The rest of the toxin is taken up by the blood and lymph, and distributed to enter the motor-nerve endings in small quantities all over the body, and by passing along the motor fibers to enter the cord diffusely, leading to the generalized spasms," etc.

The case here reported was one in which an amputation about the lower third of the thigh had been done for the relief of gangrene following a lacerated and contused wound about four inches below the knee-joint with fracture of the leg at this point.

The report may be made as follows: Mr. T. W. (colored), aged about 55 years. While the patient was riding toward home a light wagon driven at a lively speed suddenly dashed out of an alley and before he could draw his horse aside the tongue of the wagon was thrust into his leg, almost puncturing it, at a point about four inches below the knee-joint on the outer surface of the left leg.

Description of Injury.—The point of entrance was very close to the tibia, and in the line of the anterior tibial artery and nerve, and it was thought that both of these had been severed. The upper part of the fibula had been fractured by the force of the blow, and after the wound had been thoroughly disinfected, by inserting the finger into the wound several small spicules of bone could be felt, but none could be detached. The soft parts had been lacerated in all directions, particularly downward, involving the interosseous membrane, the extensor longus pollicis, extensor longus digitorum, and tibialis anticus muscles. The peroneal artery may have been ruptured, for the bleeding had been very severe. The patient, when picked up and brought into the office, was in a state of shock, anxious expression, pulse small, feeble and quite irregular. Nitroglycerin, gr. 1/25, and several hypodermics of whisky were at once given and the patient began to react. Pulsation of the dorsalis pedis artery could not be felt, and below the seat of injury the limb was very cold. The dorsalis pedis artery on the opposite foot could be distinctly felt.

Treatment.—The region around the wound was thoroughly scrubbed with soap and water, and the wound thoroughly irrigated with a solution of carbolic acid (about 1 to 30) and afterwards with a solution of bichlorid of mercury (1 to 2,000). After all hemorrhage had ceased the wound was packed with iodoform gauze, covered with bichlorid gauze, cotton and a roller bandage. A plaster-of-paris bandage was then put on, beginning at the foot and extending upwards to the upper third of the thigh. On the third day the patient complained of being restless, morning pulse 84, temperature 100.4 degrees. The limb was painful, and a hypodermic of morphin was given. In the afternoon a purgative was administered. Next day the pulse was 108, and temperature 102.6 degrees. On Tuesday morning the pulse was 116, and temperature 102.8 degrees. In the afternoon the pulse was 120, and temperature 101.8 degrees. On this day the plaster-of-paris bandage was entirely removed and the wound thoroughly swabbed out with a solution of permanganate, 5 grains to the ounce. It was found that the tissue surrounding the wound had become gangrenous, as well as the upper two-thirds of the tibialis anticus muscle. The tissues had assumed a greenish hue and were emphysematous. The odor was offensive. After applying the permanganate of potash to all parts of the wound, it was thoroughly packed with gauze. The question of amputation then presented itself. In order to make the patient more comfortable a new plaster-of-paris bandage was applied and the wound was dressed antiseptically. The limb was still very cold and hot bricks were applied. At 10:30 p. m. of this day the pulse was small, soft, intermittent and 56 per minute. The patient complained of a great deal of pain in the region of the wound and a hypodermic of morphin was given. On the following morning, Wednesday, the morning pulse was 116, and temperature 101.8 degrees. No pulsation ever returned in the dorsalis pedis artery, the gangrenous area had extended further, and the wound was very offensive. The patient, as well as his relatives, was consulted in regard to an amputation at the thigh, which they agreed might be done, and the time was set for the afternoon of Wednesday, six days after the injury occurred.

Urine.—An examination of the urine was as follows: brownish-red in color; ammoniacal odor; specific gravity 1,020; reaction faintly acid; trace of albumin; no glucose; microscopically there was an abundance of triple phosphates, with small amount of granular débris, but no casts.

Operation.—Assisted by Drs. C. A. Smith, F. W. Swindall, F. G. Kirksey and J. D. Wingate, I began the amputation at 5:50 p. m. at the lower third of the thigh, and the operation was completed at about 6:15 p. m. One hour after the operation the pulse was 120, and two hours later it was 132 (weak), temperature 102.4 degrees. Strychnin, 1/100 gr., was given hypodermically. At 10 p. m. the pulse had improved in quality, was more regular and 130 per minute. The patient appeared to be reacting nicely. At 2 a. m. I called to see how he was progressing, and found no bad symptoms. I never once suspected tetanus. He was resting well; pulse 116, temperature 100.8 degrees. I left a dose of medicine containing about 1/37 gr. strychnin and 20 mm. of digitalis, which I directed to be given by the mouth at 5 a. m. At this hour, when the nurse asked him to open the mouth in order to take the medicine, he found that he could not separate the jaws sufficiently, and only about two-thirds of the medicine could be given. At 6:30 a. m. (Thursday, one week after the injury), I found marked symptoms of tetanus present. There was only a narrow space between the upper and lower teeth, jaws firmly locked, difficulty in swallowing, slight opisthotonos, and much pain in the region of the chest, the latter seeming to come on in paroxysms. Slight opisthotonos was present. The color of objects was

normal. At 7:30 a. m. 15 grains of chloral with 1/6 grain morphin and 1 dram of bromid of potash were with much difficulty given patient. At 11:15 a. m. the teeth became firmly clinched, and nothing could be introduced into the mouth; the extremities were never involved. Peptonized milk was given per rectum for nourishment and as a medium for dram doses of bromid of potash and a small amount of whisky. At 12:30 p. m. 4 minims of fluid extract of calabar bean were given hypodermically. At this time the pulse was small in size and quick in frequency. Consciousness was preserved almost to the last, and he died at 3:15 p. m.

PELVIC ABSCESS.

A CASE REPORT WITH COMMENTS.

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Pelvic abscess from cellulitis, without pus-tube as a primary cause, is rare. Including those cases arising from pus-tube, however, the condition is uncommon in this territory. Factors most productive of pelvic suppuration are more common in large cities than in small towns and country districts, the latter being comparatively free from prostitution and criminal abortion. Legitimate puerperal sepsis, so called in contrast to that arising after criminal operations, and which is also a cause of cellulitis and of pus-tube, is rare in the practice of Houghton County physicians. Post-operative cases are very rare.

NARRATION OF CASE.

The case to be described was due to puerperal infection. The parametrium was infected probably by lymphangitis or phlebitis, or both, arising from the vagina. There was no indication of pus-tube.

History.—The patient, aged 34, had perfect health in childhood and girlhood. As far as she knows she was free from any functional or organic pelvic disorder. At 21 she married, and two years later bore her first child. The second and third children followed at two-year intervals. The labors were normal except for perineal lacerations at the first and third. Immediate repair was done each time. The date of the third confinement was May 26, 1896. On the ninth day thereafter chills, fever and uterine pain began. Treatment consisted of intrauterine douches and internal medication. Convalescence was established in four weeks.

The Previous Pelvic Abscess.—One and a half years afterward (November, 1897) spontaneous miscarriage occurred at about six weeks. The uterus was presumably thoroughly emptied, though curettage was not performed. Four days later pain and fever began, after two weeks of which the patient began passing pus per rectum. Treatment consisted in rectal douching. The patient states that pus was discharged in large quantities, as much as three or four tablespoonfuls every four hours.

This rectal discharge was allowed to continue for four months, when the abscess producing it was drained through the vaginal vault. The drainage tube fell out in two or three days, and was not replaced, the incision being allowed to close. Consequently, within two weeks, drainage re-established itself per rectum.

In May, 1898, the same operation was done with identical results, *i. e.*, re-establishment of rectal drainage on account of too early closure of the incision.

In July Dr. E. C. Dudley, Chicago, opened the vagina and inserted two drainage tubes, which were kept in place a sufficient time, and then replaced by gauze packing, which was gradually withdrawn till healing was complete. After this operation the woman spent six weeks in bed. Complete health was finally regained and the patient was not conscious of any sequels of the pelvic inflammation.

I can get no more accurate description of this abscess than that it was to the left of the uterus. This fact is of great importance when we come to the recent history of the case. My connection with the case begins at this point.

Early in 1902 she became pregnant again, and, after a normal gestation, was delivered, Nov. 17, of a large child. There was no laceration. On the fourth or fifth day the temperature rose to 103, but subsided on the removal of a small foul-smelling blood-clot from the vagina. Otherwise the puerperium was uneventful.

The Fifth Pregnancy.—This terminated Jan. 24, 1904, with the birth of an eleven-pound boy. An experienced nurse was in attendance, the patient was thoroughly washed, the sheets, pads and nightgown sterilized, and all refinements of prophylaxis were observed. I regret that the patient's temperature was not taken before delivery. Four and a half hours after delivery it was 99.8. Seven and a half hours after, 100, and nine and a half after, 100.2. Twenty hours after delivery it had fallen to normal, where it remained until the afternoon of the fourth day, when 99.2 was reached at 3 p. m. and 100.2 at 6. From this time to the eleventh day the temperature was characteristic of a mild sepsis. Below 99 in the morning and above 99 in the afternoon, with a few variations, describes it fairly well. The highest point, 100.8, was recorded on the fifth day. The maximum for the tenth day was 99, and on the eleventh the range was well within normal bounds, the last record being 98, at 9 p. m. The pulse was at no time over 84. Daily vaginal douches of lysol were given from the fourth day, no other measures being used.

Present Illness.—On the morning of the twelfth day of the puerperium there was marked tenderness over the left side of the pelvis, temperature 101. There had been no chill and no pain except on pressure. Ice was applied to the tender area and Credé ointment used twice daily. No intrauterine treatment was considered. The temperature became markedly septic in type, varying from about 100 early in the day to between 102.8 and 104 in the afternoon. The pulse varied from 92 to 112.

Examination.—Bimanual examination on the fourth or fifth day after the beginning of the above mentioned symptoms revealed a definite mass to the left of the uterus, which fairly well filled that side of the pelvis. Both fundus and cervix were crowded to the right. The mass was tender, fairly firm, attached to the uterus, and rested lightly on the vaginal vault, causing no downward bulging of the latter.

Course.—The patient's condition being good, expectant treatment was continued a few days longer, resolution not yet being despaired of. By the ninth day (the twenty-first day of the puerperium), however, no betterment was noted, but on the other hand some increase in the size of the mass and in the uterine displacement, as well as a change in the consistency of the tumor, which was now less firm and more spongy, though not distinctly fluctuant.

Operation.—On the ninth day, therefore, I operated, using the following technic: With the patient anesthetized and in the dorsal position, the perineum was retracted and the cervix gently drawn down and firmly held. The assistant, with his hand on the patient's abdomen, carefully forced the tumor toward the vagina as far as possible. A long aspirating needle attached to a small syringe was then thrust into the mass through the vaginal wall. On withdrawing the piston the syringe filled with pus, on which a tenotome was passed along the needle, enlarging the opening enough to allow the introduction of a Pean forceps. The forceps were introduced along the needle as a guide, opened two or three inches and then carefully withdrawn, the blades being firmly held apart. About a teacupful of foul-smelling pus escaped, which had the odor we associate with the colon bacillus.

Hemorrhage was free, but was temporarily disregarded while I introduced my hand into the vagina and two fingers into the abscess cavity, meanwhile grasping the somewhat contracted mass through the abdominal wall with my free hand, thus guiding the exploring fingers, and guarding against perforation of the abscess wall. With the fingers I broke down all septa and explored the abscess cavity thoroughly, till assured

that no unopened pus pockets remained. I found, in so doing, that the abscess extended well up behind the uterus, and had I not been very careful in my search I should have left behind a considerable quantity of pus which was pocketed there.

The cavity was firmly packed with gauze, the packing being continued into the vagina far enough to control hemorrhage from the wound, the vagina was lightly packed and the patient put to bed in the Fowler position. The operation required about twenty minutes. Temperature 100.6 and pulse 108 before anesthetic; at end of operation, pulse 102.

An hour later a severe chill began and lasted thirty-five minutes. The temperature rose rapidly to 106.2 and pulse to 160. Brandy, hot tea, digitalin, strychnin and one and a half quarts of normal salt solution given under the breasts were resorted to. In two hours the temperature fell to 102.6 and pulse to 144, and in five hours to 100.4 and 128.

Recovery.—For two days and a half the temperature maintained itself at about the same level as before operation, notwithstanding a free bloody discharge. Forty-eight hours after operation the packing was removed and fresh packing put in, much more loosely, however, in the hope of bringing about a fall in temperature. This was done in the morning. In spite of it a temperature of 103.2 and a pulse of 120 were recorded that afternoon. When I changed the packing I found but little foul material in the abscess, the cavity being surprisingly clean. Obviously, however, septic substances were being absorbed from that abscess cavity, or from some undiscovered pus collection. Tentatively, therefore, I removed the packing altogether, and left it out. The abatement of symptoms was immediate and striking.

Every other day, for some time, I dilated the opening in the vaginal wall by forcing my index and middle fingers through into the abscess cavity. No other mechanical aid to drainage was used. Recovery was uneventful from this time.

When the thick, foul, greenish-gray discharge had disappeared I allowed the opening to close, and at the present time, seven weeks from operation, the only remaining evidence of disease, is a moderate thickening of the tissues to the left of the uterus. The woman probably did not have a pus-tube. Cessation of discharge and closure of wound would not have occurred so readily had pus-tube been present.

This case presents a number of points which, I think, merit attention.

I. THE MANNER AND CAUSE OF INFECTION.

Had the patient a latent infection dating from the previous pelvic abscess? This is improbable, on account of the lapse of five and one-half years, and entire freedom from symptoms of pelvic disease during that time, with the exception of the transient sapremia following the confinement of November, 1902.

Could a latent infection have had its origin in this sapremia? Not if the latter was purely saprem'c, which, from the course of events, I do not doubt.

I learned, in seeking for the rise of temperature immediately after the last confinement, that the patient had for some time previous to confinement, a slight serous discharge, which occasionally had a more or less offensive odor. As it caused her no inconvenience of any sort, she did not report it to me. I do not know from what part of the genital tract the discharge came or whether it was infectious. Had I known of its existence, I should have had the vagina sterilized before accouchement.

"The overwhelming burden of evidence is in favor of the common presence of streptococci and colon bacilli in the vaginæ of pregnant woman."[1] Were these organisms present, and did they enter the uterus, causing puerperal endometritis and later, metritis and pelvic abscess? There was, at no time, any clinical evidence of endometritis. The lochia were normal in appearance, odor and quantity, which argues against a colon-bacillus infection of the endometrium. Streptococcus infection may cause no gross changes in the lochia, hence it may have been present. The abscess, however, savored strongly of the colon bacillus, the pus being thin and foul, like that from some appendical abscesses. All this argues strongly against the infection having traveled by way of the endometrium.

Were the infecting organisms carried by the lymphatics of the contused vaginal wall to the site of the first abscess infecting the normal cellular tissue and the less resistant scar-tissue? The sepsis of the first eleven days may well have been due to a lymphangitis or phlebitis arising from the vagina. Indeed, it probably was due to one or both of these conditions, which are common precursors of pelvic abscess. If so, obstetric prophylaxis should invariably include surgical preparation of the vagina.

Possibly I infected the patient myself during the one vaginal examination made, though if precautions count for anything, this is the least probable mode of infection.

II. THE ELEVEN DAYS OF MILD SEPSIS.

The second point of interest is the exceedingly mild grade of sepsis which, for eleven days, preceded the cellulitis and its violent manifestations. The temperature curve shows that the infection was nearly stamped out in its original seat (note the normal temperature of the tenth and eleventh days), and had it not been transferred to a fresh soil in the parametrium, it is likely that the eleventh day would have seen the last of it. I have never seen a more striking example of the stimulating effect of metastasis to a favorable soil on an infective agent of low vitality. The mildest sepsis may, in this way, have most alarming sequels.

III. THE VIOLENT POST-OPERATIVE TOXEMIA.

The extreme toxemia and shock manifested after the operation illustrates well the dangers sometimes attendant on simple and apparently non-dangerous surgical procedures. Absorption along the path of the opening into the abscess must have been very free and rapid and the absorbed substances of extreme toxicity. This suggests opening such abscesses with a cautery provided with a long flat tip, or the cauterizing of the edges of the opening with carbolic acid or the actual cautery, immediately after the opening is made. Or, one might first empty the abscess by aspiration through a large trocar or needle and then wash out the cavity thoroughly with water, followed by 95 per cent. alcohol, before opening it. One of these methods would, I think, prevent absorption of poisons and an overwhelming toxemia.

IV. GAUZE DRAINAGE ACTING AS A DAM.

The inefficiency of gauze drainage under conditions which might be expected to favor unusual efficiency. A free opening at the lowest part of the abscess, and the Fowler position, which by gravity helped the escape of fluids, failed to assist the gauze to a satisfactory performance of its duty. Some fluid was drained out via the gauze, but the essentially poisonous parts of the discharge were left behind to be absorbed. The free drainage secured on removal of all gauze shows that the latter was doing actual harm, by acting as a dam. In other words, it positively prevented the escape of the most poisonous parts of the discharge. Tube drainage was considered, but was not used because I am in the habit of using gauze. The method finally used, i. e., dilating the incision with the fingers every day or two, was sim-

1. Pryor: New York Medical Journal, Jan. 23, 1904.

ple, easy and perfectly satisfactory. It may be applied in other situations, provided that the source of the pus is within the reach of the fingers. I am indebted to Dr. E. C. Dudley, Chicago, for the suggestion that led to its adoption.

Special Articles.

MEDICAL AND HYGIENIC EXHIBITS AT THE LOUISIANA PURCHASE EXPOSITION.

GUY HINSDALE, A.M., M.D.

Secretary of the American Climatological Association; Corresponding Fellow of the British Balneological and Climatological Society.

HOT SPRINGS, VA.

(*Concluded from page 198.*)

II. FOREIGN EXHIBITS.

GERMANY.

Of the foreign governments Germany makes the most interesting and complete display. It is distributed through several buildings, chiefly in the Palace of Education and Social Economy and the Liberal Arts building. Germany's special building, which is a copy of the Charlottenburg Palace, has no medical exhibit. The German government has spent a million dollars to properly represent Germany at the World's Fair and the result is most admirable and most instructive. The city of Berlin, the Royal Prussian Ministry for Medical Affairs and the Imperial Board of Health have made a most systematic exhibition.

Germany shows a model representing her growth in population from 24,833,000 in 1816 to 56,367,000 in 1900; as a nation they are reaping the benefits of an enlightened national board of health and a rigid system of sanitation. The vital statistics of Berlin show that the death rate has fallen steadily, about 50 per cent. since 1871; the birth rate having also declined 40 per cent. since 1875. In other German cities as, for instance, Frankfort-on-the-Main, the birth rate seems to be maintained, the death rate being a trifle less each year. Germany shows the great advantages accruing from the vaccination law by a chart giving the mortality from smallpox in Prussia compared with other countries. Prussia had the lowest mortality, Sweden next, followed by England and Austria. The deaths from typhoid fever in the Prussian army, compared with other armies, were given as follows for the period 1896-1901: Prussia, .17; Austria, .49; Italy, .98; France, 1.6. It is probably fortunate that the figures for the United States Army during this period were not presented for comparison. Germany has spared us at least that humiliation.

The Imperial Board of Health makes a strong effort in combating epidemic disease. This includes all the infectious diseases, literature relating to which is distributed to those who wish it. These pamphlets have been translated for the benefit of English readers. Their memoranda on tuberculosis and dysentery are valuable and at the same time scientific and easily comprehended. It is held that bovine tuberculosis is communicable to man and there is no relaxation in the safeguards against infected meat and milk. The influence of Behring seems to be stronger than that of Koch. The memorandum on dysentery seems very stringent as it is ordered that children belonging to families in which cases of dysentery prevail must be kept out of school. The statement is also made that the corpses of persons who have died from dysentery can produce infection. They must be removed as soon as possible. Exposure to view in an open coffin and partaking of food in a room where a person has died are dangerous and should not be permitted. Diluted water of cresol is recommended for disinfection. Dr. Kirchner and Dr. Koch of Berlin and Dr. Kreiger of Strassburg have prepared this memorandum.

An excellent paper entitled "Modern Methods and Fundamental Principles of Combating Typhoid Fever," by Prof. Dr. P. Prosch, has been translated into English and is distributed.

The sanitary measures in Germany include sewage farms. Models and sections of those belonging to the cities of Berlin, Breslau and Dortmund are shown. There are beautiful green spaces with flowers and trees, all under high cultivation. The purification of sewage receives the greatest attention.

The sanitary exhibit includes the most advanced contrivances for street cleaning. Their sweeping machines with sprinkling apparatus attached would, I am sure, be welcome to our citizens, but contractors would probably not find them profitable. The refuse carts in use at Kiel have openings for the reception of street dust; they are always closed except as dirt and rubbish are deposited. Every precaution is taken against stirring up dust. One model, called the "system salubrita," was patented in the United States, but is used in Cologne. The entire load can be lifted away from the running gear and loaded on cars or boats. Ingenious house garbage pails in use at Frankfort are shown.

The German government evidently realizes that "perfection is made up of trifles, but that perfection is no trifle." Americans must admire and wonder how long they will have to wait until such things are possible in a government of the people, for the people and by the people.

Undoubtedly the German Emperor fosters sanitation as no other monarch does. Statues and portraits of him abound and his subjects are very much in evidence at St. Louis. The great cities of Germany, such as Dresden and Stuttgart, are represented by models. The water-works of Kiel are shown with the system of pipes exposed, and the most beautiful views of the town of Chemnitz, Ems and the coast of Norderney with its famous sea baths attract attention.

The great universities of Bonn, Breslau, Marburg and Leipsic are well represented, and the new buildings of the Royal Charity Hospital of Berlin. Professor von Bergmann's clinic is represented in part by life-size wax models representing his operations for extirpation of the larynx, for making a gastric fistula and the Bassini operation for inguinal hernia. These models are in series according to the steps of the operations; actual instruments are in place and all structures are faithfully represented.

In the exhibit of the Royal Surgical Clinic at Breslau we find the portrait of von Mieulicz-Radecki and models of his operation for resection of the intestine, for making a new communication between the stomach and intestine and for removal of a portion of the stomach. Operations on the inferior maxillary are also shown. Instruments for cystoscopy by Professor Dr. Nitze, with photographs made by means of the cystoscope, and all sorts of surgical instruments are displayed. The latest microscopes form an interesting feature. Sections of the brain and an elaborate exhibition of pathologic specimens are shown in a neighboring alcove. The domain of immunity and serum therapy has an extensive exhibit, for the Germans are certainly at home in the field of bacteriology.

The sanatoria for tuberculosis are prominently brought forward. The German institutions are the prototypes and they have certainly exerted a wonderful influence on the treatment of tuberculosis throughout the world. There is a remarkable series of photographs of these institutions of which they are justly proud. To show to what extent and with what perfection tuberculous patients are cared for in Germany. We can not help thinking that the pavilion, cottage or tent system in vogue in this country offers many advantages which these large structures can not possess.

Everyone must be greatly impressed by the elaborate establishments in Germany for baths and hydrotherapy. In Munich Karl Muller's public baths outrank anything in existence in this country. They are endowed and the architecture, the furnishings and the bathrooms and appliances are on a royal scale. Bad Nauheim makes a beautiful exhibit with marble rooms in which are the wooden tubs employed at that resort and a marble-lined tub with spray, douche and temperature-regulating apparatus and the reclining lounge for patien's after treatment. The new Imperial Moorbath at Langenschwalbach and the apparatus for preparing the peat are

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shown in a model. The municipal healing and swimming baths of the town of Barmen are represented.

AUSTRIA.

In the Austrian building, which is near the buildings of Washington University, we find the Karlsbad exhibit. Superb albums show every detail of this famous health resort. Its popularity is shown by the fact that in 1861 the visitors numbered 3,200 and in 1903, 13,300. From May to September are the favorite months, July being the best in point of attendance. The total number of visitors has been nearly 55,000. In 1902 they gave 355,000 baths. Austria-Hungary furnished the most visitors, Germany next and the remaining European states next. America sent 2,396 in 1902. There was a large falling off in 1893. Even Karlsbad felt our business disasters of that year, when there was a loss of 60 per cent. in the number of American visitors, but last year was the largest and best year. All sorts of data regarding visitors are given and from photographs much can be learned. The Kaiserbad, Prince's bath, mud bath, dressing rooms, the superb Zanderhall; the apparatus for hydrotherapy and cold water cure; the douche table, the tube, the steam bath, electric light bath, sprudel bath, the schlossbrunn, mühlbrunn, curhaus, military curhaus, salt works and waters exporting house are all shown.

BELGIUM.

Across from the Austrian building is the Belgian building. Before you enter you read something of the part Belgium has taken in the advancement of civilization. They are justly proud of the fact that the first General Congress of Hygiene was held in Brussels in 1834; the first International Congress on the Laws and Regulations of War, in 1874; and the first International Congress of Charity, in 1856. As you enter, the University of Ghent with its institutes of hygiene, of bacteriology and of legal medicine; the University of Liege, with its clinical hospital and the portraits of its professors, attract attention. The National League of Belgium Against Tuberculosis is represented here and the placard "Ne crachez pas par terre!" shows what they are doing in that direction.

TRAVEL NOTES.

I. TRAVEL AS A MEANS OF POST-GRADUATE MEDICAL EDUCATION.

NICHOLAS SENN, M.D.
CHICAGO.

SAN FRANCISCO, July 7, 1904.

For the second time I am on a tour around the world—this time in an opposite direction from East to West, via India. I leave San Francisco on the steamer *Sierra*, July 7, and if I am spared the disease-producing effects of the tropical climate and not delayed by failing to make timely connections, I expect to reach New York on the *Kronprinz Wilhelm*, October 11. Three years ago I girdled the globe via Siberia in three months and twenty days. That trip was replete with information of all sorts, general and professional, and the pleasure of it was enhanced by the companionship of my friends, Prof. D. R. Brower and Drs. Martin and Frank.

I am very well aware of the fact that midsummer is the wrong time to undertake a journey through India, owing to the intensity of the heat, but I expect to receive at least a partial recompense for the expected sufferings incident to unfavorable climatic conditions by avoiding crowded hotels, cars and steamers, which so often detract from the pleasures and benefits of travel during the winter season, when the tourists elbow their way over this popular pathway around the world. This, at least, was my experience in visiting the Holy Land and Egypt during the summer months on a former occasion.

Beside, the duties of my college work are such as to preclude all possibility of seeing India at the most desirable time. My friends who had contemplated making this long journey with me have all, one after the other, decided otherwise, so I shall find myself alone for once from one end of the world to the other. This isolation also has its advantages and charms. The time will belong to me exclusively and I shall dispose of it in the most profitable manner in studying the different places of greatest interest, the people, their customs and habits. I shall also devote special attention to matters pertaining to our profession and report from time to time to the readers of THE JOURNAL the results of my observations. Experience has taught me that in traveling in tropical countries the best means to counteract the baneful effects of heat is work, mental and physical. It is under the influence of prolonged heat that inactivity begets mental and physical languor, while exercise of body and mind increases the force of the enfeebled circulation and stimulates the organs of secretion and excretion to greater activity. Before leaving the Pacific Coast I desire to discuss very briefly the subject indicated by the title of this, my first communication, and in doing so I fully realize what Cicero said of letter-writing:

> "We write differently when we think that those only to whom we write will read our letters, and in a different style when our letters will be seen by many."

My prospective letters mean letters to the over 31,000 subscribers of the official organ of the American Medical Association, many of whom I count among my most esteemed and intimate friends, hence my diffidence and uneasiness in beginning.

From time immemorial travel has been recognized as an important element in acquiring a general education and in obtaining proficiency in the professions, arts, sciences and trades.

It is the study of men and manners in different climes and varying social and political conditions that proves so useful in enlarging the views of life and weighing its possibilities. Horatius was fully aware of this when he wrote:

> "The knowledge of men and manners is the first principle and fountain head of good writing."

Before machinery usurped the place of hand labor mechanics and tradesmen acquired their technical knowledge by serving as apprentices for a number of years under the supervision of an acknowledged master, and after having obtained the required proficiency they spent another year or two, their *wanderjahre*, in traveling from place to place in perfecting themselves in their vocation by familiarizing themselves with the practical work of different masters, before they considered themselves fully qualified to take their independent stations in life. In this manner they acquired a reliable knowledge of the details of their work, which no one master could impart. If travel and observation and practice under different masters in the acquirement of a thorough knowledge of the different trades are such important factors of success in the world of business, it must appear very evident that the same means are even more desirable and efficient in the study of medicine and in keeping pace with the wonderful advancements and improvements of the most progressive of all professions. In this age of research and discoveries, the science and the practice of medicine and surgery are undergoing revolutionary changes from day to day, and the ceaseless search for truth and facts makes it necessary for the modern practitioner to keep abreast with the latest and best pertaining to his calling.

In our day this means much. It was not so in the remote past, when the authority of writers of popular text-books remained unchallenged for centuries. We live in an age characterized by progressiveness, deep scientific investigation, free and sharp criticism. Theories advanced by one are overthrown by another unless they stand the crucial test of successful repetition by acknowledged leaders in the profession. What was new yesterday may become old and obsolete to-morrow. Scientific work is no longer confined to a few favored institutions; it may be seen in all parts of the civilized globe. Nations and institutions are now engaged in a laudable competition to excel in blazing new pathways through the still unexplored territories of scientific medicine. It is by the concerted, systematic, scientific investigators of disease in all climes and under varying conditions that we must look for more radical measures in the prevention and more successful

treatment of disease. There is no time in the life of a medical man when he feels more confident and competent to battle successfully with disease and perform the most difficult operations than on the day he leaves his alma mater, diploma in hand, ready to seek his place in the crowded ranks of his future profession. If the new aspirant for a liberal patronage is honest, it will not take him long to discover his shortcomings and crave for more knowledge. He will be made painfully aware of the fact that

> "Because all the sick do not recover, therefore medicine is no art."—Cicero.

The completion of the study of medicine, even in the best equipped medical colleges and universities, furnishes at best but the foundation for the subsequent post-graduate education. If the foundation is firm and the building material contributed later substantial and in sufficient abundance, the resulting structure will resist fire, wind and storm, a lasting monument to the builder. If the foundation is defective and the building material not of the right sort, failure and disappointment will surely follow misdirected efforts, no matter how earnest and persistent they may have been. The successful physician and surgeon will be the one who, with the day of his graduation, enters on a rational, well-planned post-graduate course of the study of medicine and its allied sciences. This constitutes a life study. Without it the practice of medicine inevitably soon degenerates into a miserable trade. The reading of new textbooks and the best current medical literature, passive and active work in medical societies, local, national and international, laboratory work in the office and local hospitals, are well calculated to meet the needs of the ambitious, conscientious practitioner, but they will not suffice in giving him the best possible opportunities to keep in touch with the spirit and practice of the extraordinary age in which we live. Reading and seeing are two entirely different things. The eye is the great educator in technics of all kinds. It is one thing to read the description of a complicated operation; it is another thing to see it performed by the hands of a master. Textbooks, valuable as they are, are but poor substitutes for actual instructions and demonstrations in clinical and laboratory methods. Personal intercourse with prominent men in the profession imparts a stimulation for more earnest and more effective efforts not obtainable to the same extent in any other way.

A personal acquaintance with men who have earned a well-merited reputation in the advancement of our profession is a source of great gratification and excites a new interest in the work he has accomplished. The study of strange diseases in distant countries fills a gap which a college education and subsequent reading can not fill. An accurate knowledge of climatic conditions and their effects on health and disease can only be acquired by travel.

For the professional man, and especially for the physician, travel opens a field of learning and affords opportunities the importance of which can not be overestimated. In order that travel may yield the desired results, both physically and mentally, it must be carefully planned and properly conducted. The demands on the time and energies of an exacting, laborious practice are such that fatigue, bodily and mental, must follow sooner or later. Of all learned professions the medical is the one in greatest need and most deserving of a long, free-of-care annual vacation. It is hard to make the public believe this, but it is nevertheless true. During the summer months the complicated mechanism of the law comes to a standstill and the lawyers take their vacation without crippling their bank account to any considerable extent. The fashionable churches close their doors when the members of the congregations leave for their luxurious summer homes, and the rectors and preachers, with purses well filled with gold by their appreciative parishioners for their vacation expenses, leave the great cities and spend their allotted leisure weeks and months where they are sure to find rest, comfort and recreation. It is the physician who is expected to work from one end of the year to the other, ready for call by day and night, in sunshine and storm. It is the physician whose annual income suffers when he leaves his practice for a much-needed outing. It is the physician who carries away with him the weight of his responsibilities to a greater extent than the members of any other profession when away from daily routine work. The public must be made to understand that medical men are entitled, above any other profession or class of men, to an annual vacation, and that such vacation, properly spent, will bring to their patients better service, and will be one of the most important factors in promoting the science of medicine, public hygiene and sanitation.

Where and how shall the physician spend his vacation?

> "Travel, in the younger sort, is a part of education; in the elder, a part of experience."—Bacon.

The physician who has the interests of his patients and profession at heart will not be content, like most professional and business men, to spend his precious vacation time in idleness at some fashionable seashore or mountain resort or to imbibe the questionable pleasures of city life. The working time of a professional career is too short to waste time by idleness or dissipation. Rest to him means work of the right kind. What wears a busy doctor out is not the physical work he does, but the care and sense of responsibility it carries with it. The greatest pleasure to him is to see others work, and the sweetest rest a freedom from care. Brain fatigue is more frequently caused by care, real or imaginary, than overwork. A man in average health can do an incredible amount of congenial work, but it is care that furrows the face and blanches the hair prematurely.

Relieved of care the physician on his vacation is in the best possible mood to reap the benefits of the work of others near and far. The visits to laboratories, hospitals and museums, the personal contact with colleagues in different countries, the inspection of new instruments, the practical work in the operating room and laboratory will become to him fascinating and instructive object lessons. The genuine feeling of fraternity among medical men throughout the entire world will insure to the earnest and honest seeker of knowledge a most friendly reception, provided the visitor conducts himself properly. The American, born in a land where the idea of equality among men is pre-eminent, in order not to give unintentional offense, must adapt himself to the customs of the countries he visits, and thereby secure the good-will and friendship of those whose work he is privileged to see.

In Europe the matter of titles conferred by the governments on medical men is confusing to the American visitor. Fortunately our forefathers guarded against anything reminding one of royalty to take foothold on our soil. In Europe and any of the European possessions and Japan a titled person must be recognized and treated as such. The title professor there means much more than with us, for the reason that it can not be made use of without being granted by the government. A professor must, therefore, not be addressed as doctor, as is customary in our country, where the freshman medical student does not hesitate to make use of this common and familiar term in addressing his teachers, and if he comes from some rural districts, where physicians are too familiar with their clients and neighbors, he may be bold enough to shorten the word to "doc."

As soon as a European professor is honored by a government title he has a decided preference for the latter, hence, if he is a lord, sir, excellency, geheimrath, baron, pasha, bey, etc., he expects to be addressed by the titles with which he has been honored.

Another thing the traveling physician should always be mindful of, and that is not to pester the teacher or operator with unnecessary questions. Many of these men we meet are very busy, and their temper is sometimes ruffled by overwork. The assistants, less burdened with responsibilities, are always glad to give the required information if approached properly and at an opportune time. The firing of questions, often of an irrelevant nature, at a busy overburdened professional man, is in exceedingly bad taste, and can hardly fail to excite his displeasure. The physician away from his cares and strenuous duties should not undertake to teach or to in-

struct, but should devote all available time to add to his knowledge by seeing, hearing and reading. The visiting physician must become a well-squeezed sponge, ready and eager to absorb, slow in offering advice and in exhibiting his operative skill. The display of technical skill in strange hospitals and clinics should be discouraged, as the operator labors under the great disadvantages of doing his work with unfamiliar instruments and strange assistants, and for these and other obvious reasons can not do himself and his patient justice. The traveling post-graduate medical student, unless he intends to devote considerable time to laboratory work, should not remain at any one place for any length of time. It does not take long to become familiar with methods of teaching and details of operative technic. It is more profitable, and certainly more interesting, to see ten men operate ten times each than to see any one man operate a hundred times. Travel, as a means of post-graduate medical education, does not necessarily imply that the time should be spent in great medical centers, as is too often the case. Some of the very best medical and surgical work is now being done beyond the shadows of medical schools and great metropolitan hospitals. We often learn more of the real merit of a surgeon who is thrown entirely on his resources in some remote, small, isolated city, whose instrument supply is limited, assistants few and perhaps inexperienced, than when we witness the operations by recognized masters in the palatial hospitals, supplied with everything that modern surgery could possibly suggest, and assisted by a large staff of well-trained, experienced resident surgeons.

In our country and abroad magnificent little hospitals are being built in the smaller cities and large villages in which the patients receive excellent nursing and the very best medical and surgical service. Some of these places in our own country have recently become famous for the excellency of the surgery practiced. Among these Rochester, Minn., and Oshkosh, Wis., deserve special mention. The Mayo brothers at Rochester control the lion's share of the surgery of the west, and their hospital in the little prairie city of not more than 5,000 inhabitants has become a Mecca for the surgeons not only from this country but from abroad. There is no other hospital on this side of the Atlantic in which so many important operations are performed daily as in this one. It would be difficult for any one to visit St. Mary's Hospital, Oshkosh, a city of 30,000 inhabitants, in which Dr. C. W. Oviatt does his surgical and gynecologic work, and find him perform less than three or four major operations, any day of the year. These are by no means isolated instances, there are many other comparatively small cities in which the traveling physician will find excellent physicians and surgeons from whose example and practice he will carry away many new ideas, suggestions and hints of scientific and practical importance. The clinical teacher is not necessarily the best physician or surgeon, as much of his time and talent are consumed for the benefit of his students. It is the man with a solid, scientific foundation, endowed with a keen, practical sense, studious and devoted to his work, who generally scores the greatest success. Travel from place to place has this one great advantage, that the traveler does not become one-sided nor too much influenced by the views and practice of any one man. The traveler must know how to discriminate, what to reject and what to adopt. We often learn more from shadows than light and from mistakes than a correct technic. The privileged visitor must be slow in criticism and grateful for the opportunities he is given to familiarize himself with methods employed by men in various parts of the world. Let him travel from place to place, cultivate the personal acquaintance of his professional colleagues near and far and learn from them all he can and remember that

> "The use of traveling is to regulate the imagination by reality, and instead of thinking how things may be, to see them as they are."—Johnson.

Many men with brilliant minds and endowed with the purest and noblest ambitions to succeed in their calling fail in reaching the intended mark because they did not keep in touch with the outside world. In the practice of medicine isolation is a dangerous thing because it engenders a routine practice from which it is impossible to escape in late attempts. The observation of the work of others, the interchange of ideas and experiences constitute a course of post-graduate education which can not be supplanted by the greatest diligence in reading and hard laboratory work. The young doctor should take short vacations, and with advancing age the length of vacations and scope of travel should increase. Away from trouble, free from care, the wandering physician will find between his hospital visits, laboratory investigations and museum studies most profitable opportunities to dip deep into the great and inexhaustible book of nature. I can hardly conceive of a physician who loves and values his profession who should not take the deepest interest in medical geography and everything that pertains to it. The physician can not help making man, under the most varying conditions, climatic and social, a life study. He can not resist the allurements of the vegetable and animal kingdom under most diverse conditions of climate and soil. Away from the bedside and operating room, out of reach of the moaning, of the suffering and the anxious faces of the parents and friends of the afflicted, he will instinctively turn to the more pleasant phases of life and study and admire the wonderful works of the Supreme Creator of all things, animate and inanimate. Away from toil the sun will appear to him brighter, the stars nearer and more brilliant, the flowers more beautiful, the foliage and sward greener, the song of birds more cheerful, the babbling of brooks more gentle and the language of the talking ocean sweeter than when eye and ear are engaged by the afflictions of his suffering clientele. Let the overburdened, careworn physician remember when away from care and anxiety

> "We place a happy life in tranquility of mind."—Cicero.

(To be continued.)

Criticism of the Mosquito Theory of Yellow Fever.—N. Vergueiro analyses the article by Ribas and also the report of the French Yellow Fever Commission (see pages 983, 1057 and 1369), and states that his extensive experience and observation at S. Paulo and elsewhere in Brazil have demonstrated that their premises are erroneous. He is one of the collaborators of the *Revista Medico de S. Paulo* and his article on the subject is contained in Nos. 3 to 6 inclusive. He does not accept the mosquito theory of the origin of the yellow fever, and states that the bite of a *Stegomyia fasciata* infected with blood from a yellow fever patient causes a disease, but it is an infection *sui generis*, extremely benign and never fatal, and it is not yellow fever. This infection does not confer immunity to yellow fever later. He ascribes the focus of yellow fever infection to the filthy subsoil of certain localities, although in exceptional instances objects may be contaminated and convey infection. The holds of ships are liable to unite conditions similar to those found in filthy subsoils, and thus afford opportunities for a focus of yellow fever to develop. Yellow fever is acquired at night, he says, and out of doors. Infection from the stegomyia is acquired inside the house. This mild pseudo-yellow fever derived from the bite of an infected mosquito explains the cases that have been assumed to be recurrences of yellow fever. The predilection of the stegomyia for localities where the subsoil is contaminated explains the frequent coincidence of these mosquitoes and epidemics of the icteroid type. The greater or lesser number of mosquitoes of this species present during a yellow fever epidemic in various localities and at different times in the same locality, explains the great differences in the death rate of different epidemics, as the cases of the infection *sui generis* from the mosquito bites are confounded with those of true yellow fever. Whenever the climatic conditions forbid the presence of the stegomyia, an epidemic of yellow fever developing on a contaminated subsoil without the stegomyia inevitably affords an unusually high mortality, and there are no instances of the supposed recurrences. He sustains all these assertions by data personally collected from various localities.

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THE PREVENTION OF DIPHTHERIA.

When the transmissibility of diphtheria became known, certain procedures naturally developed which were intended to hinder the spread of the disease. At first these methods consisted in a so-called disinfection of the rooms and articles regarded as infected and in a brief isolation of the sick. Later the increasing knowledge of the nature of diphtheria and of its manner of spreading have rendered the problems much more complex than apparent previously.

As regards disinfection, as ordinarily practiced, its rôle in the prevention of diphtheria must always be a limited one. Of course, rooms must be washed and aired and clothes, utensils and playthings subjected to disinfecting procedures; but even if we grant that hereby are destroyed certain evident sources of infection, it must be remembered that, as we shall point out at once, these are not the only sources that carry the infection broadcast.

In the prebacillary days, isolation of the patient was maintained until the membrane vanished. After the discovery of the diphtheria bacillus it soon was thought necessary that isolation must be continued until all virulent bacilli have disappeared from the throat and nose. This generally takes place in from two to six weeks after the disappearance of the membranes, but there are now numerous instances recorded in which bacilli have persisted for several months. It is, therefore, evident that effective isolation of diphtheria patients, especially in the country, can not always be carried out. It has also been shown that in diphtheria convalescents bacteriologic examinations of throats must be repeated many times with negative results before it can be declared that bacilli no longer are present, because bacilli may be absent, so far as our methods for revealing them are concerned, only to reappear in demonstrable numbers after a few days. How long a bacillus-carrying diphtheria convalescent continues infective will, of course, always remain a matter of uncertainty.

There forms about every diphtheria patient what may be termed an infected circle, composed especially of the brothers and sisters, the parents, the servants, schoolmates and close associates in general, who may carry virulent bacilli in their throats and noses without themselves necessarily becoming ill. This condition has been designated as "latent diphtheria," "hygienic diphtheria," etc. In such persons may be abnormal states in the nasopharynx—"sore throat"—and to such have been applied the term "diphtheroid conditions." Numerous statistics are now at hand bearing on this phase of the question, and we may say that the largest numbers of bacillus carriers develop or are found in conjunction with cases of diphtheria where the daily, personal relations are most intimate; that is, in the family (10 to 50 per cent.), in schools (up to 25 per cent.), in hospitals, institutions, barracks (10 to 20 per cent.). Repeated observations show that when cases of diphtheria develop, for instance, in a school, a certain more or less varying percentage of the pupils will be found to have virulent bacilli in their throats, and of these pupils many may escape clinical diphtheria. While it is not possible to say dogmatically that all such bacillus carriers have received their bacilli from established cases of diphtheria, yet there can be no question but that a dissemination of bacilli, as a rule, takes place about foci of diphtheria, and it lies very near at hand to regard actual cases as the principal sources, especially of virulent diphtheria bacilli. To what extent the healthy bacillus carriers may infect others is also undecided, although the fact that the bacilli are virulent (for animals) may make these sources of danger under certain circumstances.

It has also been found that diphtheria bacilli are present in the throats of a small percentage—1 to 3 per cent., and even larger—of healthy persons in general, even when diphtheria is not present. In many of these cases, perhaps in most, the bacilli are not virulent, and the consensus of opinion seems to be that such cases play no rôle in the spread of the disease.

When it was discovered that healthy persons may harbor diphtheria bacilli in their throats and noses, the thought at once arose that such persons must be important, perchance the most important, factors in the spread of the disease. In some cities wholesale isolation of bacillus carriers was practiced, but this prophylactic measure does not seem destined to vigorous continuance, especially on account of the great practical difficulties of various nature connected with the isolation of well persons, as well as because of a reasonable doubt as to the actual danger of infection from such persons. There is a noticeable tendency among recent authoritative writers —Aaser, Gabrietschewsky—to minimize the dangers of transmission of diphtheria by healthy bacillus carriers; they point out that there is little empirical evidence in favor of such transmission. The harmlessness of healthy bacillus carriers who have not been in close relation with actual cases of diphtheria is generally acknowledged.

While isolation of the sick and disinfection are well-established prophylactic measures, whatever one may think of the wisdom of isolation of healthy bacillus carriers were it practicable, probably the most important measure at our disposal for the prevention of diphtheria is antidiphtheria serum. This was emphasized early by both Roux and Behring. The latter has long advocated serum as the only practicable method of preventing diph-

theria. Of late years the use of serum for this purpose has unquestionably increased rapidly, and numerous striking examples are now recorded of prompt jugulation of threatening epidemics in schools and hospitals, as well as other institutions, by the liberal use of serum. In general, from 300 to 500 immunizing units are regarded as sufficient for this purpose. In case chance for infection should persist, this injection should be repeated in three to four weeks, because that is regarded as the average duration of the passive immunity established. It has been estimated that used in this way the serum will protect against diphtheria in from 97 to 100 per cent.

American boards of health have long been impressed with the value of immunizing injections in the prevention of diphtheria. In the circular to physicians recently issued by the department of health in New York City,[1] certain statistics are quoted from the records of the department, which show that from Jan. 1, 1905, to Jan. 1, 1903, preventive injections were administered to more than 13,000 persons, of whom 3 per cent. contracted diphtheria of a mild type, although all had probably been exposed to infection because of the presence of the disease in other members of the family. Other statistics indicate that in persons similarly exposed, but not so treated, a many times larger percentage of cases of diphtheria develops with a rather severe death-rate.

In a school in Paris, diphtheria appeared from time to time between November 10 and December 5, when the school was closed, and 164 pupils—more than 90 per cent. of the total number—were immunized. The school was opened again on December 8, and no new cases appeared (Netter). In Norway, in which this phase of the diphtheria question has been studied very actively, the preventive use of serum is quite general, and numerous instances are cited of the prompt limitation of outbreaks in schools without interruption of the work. Aaser was able to prevent the development of new cases after the introduction of diphtheria into his scarlet fever and measles wards, and that without disinfection, merely by immunization. This is the more significant when we recall the susceptibility of measles patients to diphtheria. Another striking example of the value of preventive serum injections is the following (Aaser): Of 101 well persons who were isolated because they had bacilli in their throats and received serum, not one developed diphtheria, while of 117 persons isolated for the same reason, in the same place, and about the same time, but none of whom received serum, 7 came down with diphtheria. Other examples of similar nature are recorded. It is evident that serum does what neither disinfection nor isolation can do—prevent disease in the already infected susceptible person, and by so doing it also prevents the establishment of a new focus for dissemination of infection. We hope that the preventive use of serum will be generally adopted by physicians throughout the country. It may be pointed out that this form of prevention of diphtheria is in its general features quite like the usual prophylaxis of smallpox—isolation of the sick and vaccination of the exposed.

1. THE JOURNAL A. M. A., May 7, 1904, p. 1227.

A BACTERIAL STANDARD FOR CITY MILK SUPPLIES.

The recent action of the Boston Board of Health providing for the condemnation of any milk or cream that is found to contain more than 500,000 bacteria per cubic centimeter, is likely to cause renewed discussion of the desirability and feasibility of maintaining a legal bacterial standard for the milk supply of large cities. The trend of expert opinion has for some time past seemed to be toward such a step as that taken by the Boston authorities. The milk commissions that have been established in several places have adopted from about 10,000 to 30,000 per c.c. as marking the maximum permissible bacterial content in milk that can receive the seal of approval and be designated as "certified." These specifications have been based for the most part on detailed observations of the bacterial changes in milk, both under indifferent and under reasonably reformed conditions of collection and transportation. The definite requirement of a standard has in itself had a wholesome effect. The health authorities of some cities of moderate size have been so far influenced by recent opinions as to put into practical application standards of a fair degree of stringency. The encouraging and really remarkable results that have been achieved in this direction in Montclair, N. J., and some other places are well known to sanitarians. At the last meeting of the American Public Health Association, in a report of a four years' campaign in maintaining a bacterial standard of cleanliness in the milk supply of the city of Rochester, N. Y., it was stated that the monthly average of bacteria in the milk had been reduced from 796,000 per c.c. in 1900 to 209,000 in 1903.

These facts suffice to explain the existence of a widespread conviction among bacteriologists that it is both practicable and important to establish some sort of limit to the bacterial contamination of city milk. The examinations that have been made of market milk in the larger cities in this country and abroad show that the number may vary from a few thousand per c.c. up to 50,000,000, or even higher. The average of any representative series of samples is likely to be considerably more than 1,000,000, or about the average of city sewage. While there seems to be no doubt among bacteriologists respecting the undesirable and unnecessary character of this appalling contamination, public-health officials have not always been agreed about the practicability of inaugurating immediate reform. To many the difficulties of applying so delicate a standard as one based on bacterial data have seemed insurmountable, although it is freely admitted that so far as the public health is concerned the bacterial content is on the whole more significant than the percentage of fat and total solids.

The origin of the enormous number of bacteria sometimes found in city milk is now clearly understood. Staleness and uncleanliness are the two great factors in producing the swarms of microbes that often infest milk when delivered to the consumer. It is evident that the conditions that cause milk to be dirty are precisely the conditions that allow it to become infected with pathogenic bacteria. It needs no argument at this day to show that milk that is both dirty and stale constitutes a serious menace to the health of the modern urban community. No one will question that it is possible for any farmer to secure conditions of greater cleanliness than those that at present prevail in many stables and dairies, nor can any one doubt that ordinary intelligence directed to keeping milk at a low temperature will greatly retard bacterial multiplication. There is undoubtedly a growing feeling that the present conditions, deplorable as they are, may be remedied without too great upheaval or injury to "vested interests." Park, as the result of a thorough investigation into the condition of the New York City milk supply, formed the opinion that "with only moderate cleanliness such as can be employed by any farmer, without adding appreciably to the expense, namely, clean pails, straining cloths, cans or bottles and hands, a fairly clean place for milking, and a decent condition of the cow's udder and the adjacent belly, milk when first drawn will not average in hot weather over 30,000, and in cold weather not over 25,000 bacteria per c.c. Such milk if cooled to and kept at 50 F. will not contain at the end of twenty-four hours over 100,000 bacteria per c.c.; if kept at 40 F., the number of bacteria will not be over 100,000 after forty-eight hours." He concludes that, when beyond a certain limit, milk should not be allowed to be distributed, and expresses his judgment that a suitable standard for immediate practical application in New York City would be 500,000 per c.c. for milk entering the city, and 1,000,000 per c.c. for milk delivered to the consumer. It would seem that such liberal standards could work little initial hardship to the producer, while they would be almost certainly the means of materially improving the quality of the milk supply. The enactment by the Boston Board of Health is a move in the right direction, and it is to be hoped the example will be speedily followed elsewhere.

RECURRENT PAINFUL EDEMA WITH HEMORRHAGE.

The disorders of the vasomotor mechanism are manifold, and may be variously combined. Thus, there may be vascular constriction or vascular paresis, separately or in varying combination; and, accordingly, there may result such conditions as local syncope or local asphyxia, or mixtures of the two of varying degree. Many of the phenomena of exophthalmic goiter are of vasomotor origin, resulting probably from the influence of excessive thyroid secretion on the vascular tension. One of the most typical and distinctive members of the group of disorders under consideration is so-called angioneurotic edema, which sometimes occurs independently and at other times in association with other derangements of the nervous system. It can readily be conceived that this designation may comprise not a single disease-entity, but a number of different affections, having in common the phenomena of recurrent and more or less localized edema of neurovascular origin. It is on some such line of reasoning as this that perhaps is to be explained a chronic neurosis, characterized by frequent paroxysms of pain, swelling and hemorrhage in various parts of the body, recently described by Dr. T. K. Monro and Dr. A. N. McGregor.[1] As will be seen, the symptoms are suggestive on the one hand of angioneurotic edema, and on the other of the purpuric type of erythema.

The disorder occurred in a man, 28 years old, who, during a period of seven years, suffered from time to time from attacks attended with pain and swelling in one or more joints or in the fleshy parts of the limbs, followed by discoloration of the overlying skin and relieved by the recumbent posture. Small red, slightly elevated painless spots, surrounded by a white ring, occasionally appeared on the legs, with heat and itching, and disappearing in the course of a day or two. Severe attacks were sometimes attended with malaise, shivering and considerable thirst, but there was no headache or vomiting. In connection with the attacks a little blood was occasionally passed by the bowel, but none was ever observed in the urine, and none escaped from the nasal or buccal mucous membrane. After four years, attacks of pain in the chest set in, with cough, mucopurulent and at times bloody expectoration and elevation of temperature. The tongue was often the seat of discoloration, usually without pain. On one occasion, when the throat became sore and a sense of suffocation developed and was followed by dyspnea, examination disclosed swelling of the pharynx and larynx.

The attacks recurred at intervals of from two to four weeks. The urine was free from albumin and sugar, but at times it deposited crystals of uric acid on standing. The functions of the digestive system were not deranged. The area of cardiac dullness was somewhat increased, but heart sounds were normal. Neither tubercle-bacilli nor pneumococci could be found in the sputum. The percussion-note over the apex of the left lung was impaired, and in this situation consonating râles and friction-sounds could be heard, without alteration in vocal resonance or fremitus. Subsequently signs of involvement also of the right lung appeared. The knee-jerks were exaggerated, but the plantar reflexes were absent. There were, however, no other evidences of disease of the nervous system. The feet were cold, moist and livid. The blood was sterile, and its coagulation-time was normal. The hemoglobin-percentage was 75, but the number of red and white blood corpuscles was normal. Later in the course of the disease

1. Lancet, April 16, 1904, p. 1039.

copious hemorrhage occurred in the mouth, involving principally the soft palate, but extending down to the pillars of the fauces on the left side, and associated with some edema. Shortly after this there was a large hemorrhage in the wall of the left chest, extending vertically from the angle of the scapula to the lower costal margin, and horizontally from the middle line behind to two inches in front of the midaxillary line. Hemorrhages occurred also in other parts of the body.

Death took place rather suddenly in the sequence of an attack superinduced by emotional influences. On postmortem examination the lungs were found to be the seat of miliary tuberculosis, and recent tuberculous lesions were present in the intestines. The heart was slightly enlarged, but the valves and the myocardium were healthy. The kidneys were congested and their capsules adherent in places. The liver was in a state of cloudy swelling. The spleen was enlarged and the seat of hemorrhages, and its malpighian bodies were well marked. The brain was normal, while in the cord only a slight increase in neuroglia was found in the posterior part of the columns of Goll. In the dorsal region especially, but also in the cervical and lumbar regions, the small arteries and capillaries, particularly in the neighborhood of the central canal, appeared unduly numerous and congested, and the surrounding lymphatic areas were considerably dilated. No change was found in the peripheral nerve that was examined.

The father of the patient was an epileptic, while a brother had died of tuberculosis. There was no history of hemophilia in the family, and the patient himself had at no time exhibited symptoms of this disease. He had, further, been free from venereal infection, malarial fever, dysentery and other tropical diseases.

AGGLUTINATION OF TYPHOID BACILLI IN CASES OF PROTEUS AND STAPHYLOCOCCUS INFECTION.

During the last few years a number of facts have come to light which tend to show that the agglutination of typhoid bacilli by typhoid serums is not a specific reaction. The facts thus far recorded do not, however, detract greatly from the diagnostic value of this reaction in typhoid fever. It has been shown, for instance, that typhoid immune serum may agglutinate not only *B. typhi*, but also *B. paratyphi, B. coli, B. proteus, B. florescens liquefaciens* and others. In these cases, however, there was only noted agglutination of bacteria other than the typhoid bacilli by typhoid immune serum, and no mention is made of agglutination of typhoid bacilli by serums other than typhoid serum. The latter point is, however, most important in clinical medicine, because, if it is found that such serums agglutinate typhoid bacilli, the greatest care must be exercised in making a positive diagnosis, even if the Widal reaction is positive. In a recent number of THE JOURNAL[1] we called attention to the fact that we may get a positive Widal reaction in certain cases of jaundice, but some investigators are inclined to believe that this reaction is dependent on an atypical and obscure typhoid infection somewhere in the body. It was pointed out, though, that in some cases only the pus cocci could be isolated.

Lubowski and Steinberg[2] have recently reported two cases of non-typhoid infection in which they got a positive Widal reaction in dilutions up to 1 to 80. Both of these were cases of otitis media, with extension into the sinus sigmoideus, and later general sepsis. From the first case were isolated a staphylococcus, a streptococcus and *B. proteus*, and from the second case *B. proteus* in pure culture. No typhoid infection could be found, although the first case came to autopsy. So far as could be ascertained, neither patient had had typhoid. In the second case (proteus infection) a positive Widal reaction was obtained in dilutions up to 1 to 40, at the first examination, but ten days later the reaction was obtained in dilutions of 1 to 80. Evidently the agglutinative power of the serum had increased during this time. The serum from this patient agglutinated *B. proteus* in dilutions up to 1 to 2,500.

Lubowski and Steinberg immunized rabbits against the organisms which they isolated from these patients and tested the immune serums for agglutinative properties for typhoid bacilli, with the following results: The proteus immune serum in some cases agglutinated typhoid bacilli in dilutions up to 1 to 1,200. The staphylococcus immune serum agglutinated in dilutions up to 1 to 640, while the streptococcus immune serum did not agglutinate typhoid bacilli in higher dilutions than normal rabbit serum. In some rabbits the agglutinative power of the serum for typhoid bacilli could not be increased to an appreciable extent by injections of *B. proteus*. There seems, therefore, to be a difference in different individuals in this respect.

It was pointed out above that no other bacteria than pus cocci could be isolated from some of the cases of jaundice in which a positive Widal reaction was obtained, and here it seems that the pus cocci were responsible for the reaction. Several cases of Weil's disease in which a positive Widal reaction was obtained have also been reported. The *B. proteus* is often associated with this disease, and in these reported cases this organism was probably responsible for the Widal reaction.

We can see now that the sources of error in connection with the Widal reaction are not altogether insignificant, and that too much dependence should not be placed on this reaction alone. This is especially to be emphasized in connection with acute suppurative osteomyelitis, which often resembles typhoid very closely. As this disease is generally caused by the *Staphylococcus pyogenes*, it would not be surprising, in view of the facts discovered by Lubowski and Steinberg, if a positive Widal reaction were obtained in some of the cases. In

1. THE JOURNAL A. M. A., 1904, vol. xlii, p. 1025.

2. Deutsches Arch. f. klin. Med., 1904, vol. lxxix, 396.

other cases of staphylococcus infection and in proteus infections it is possible, as we have just seen, to make equally grave errors in diagnosis if too much reliance is placed on the Widal reaction.

THE ANNUAL SESSIONS.

The next session of the American Medical Association will be held in Portland, Oregon. The coast was entitled to a session, and that at Portland will be good for the Association and for the profession of the Pacific slope. The distance is so great for the majority of the members that the attendance can not be expected to approach that of the recent record-breaking session at Atlantic City, and yet facilities of travel and other essential factors have so improved that it will not be surprising if the attendance at Portland greatly exceeds that which most anticipate. Even with a smaller attendance, however, there will be no falling off in interest and profit. It is unsafe to guess at futures, but there certainly seems ground for the belief that the Association will next year accept for 1906 the very cordial invitation of the Massachusetts Medical Society to meet in Boston. It seems highly probable, therefore, that the next two session-places are pretty well settled, and this, then, seems an appropriate time for some consideration of the whole question of the annual session-place. The Association is so large that its requirements necessitate confining the sessions to such places as can comfortably accommodate large numbers. Atlantic City is an ideal meeting-place, and some members suggested that all sessions be held there. That, of course, is not feasible, but it does seem as if every third or fourth session might well occur there. Saratoga also, with the one exception of being just off a main line of travel, is excellently equipped to care for the Association, and one other session out of every three or four might well be held there. Then, if it is desirable to arrange a somewhat fixed schedule of sessions, one out of, say, ten should go to the Pacific Coast, another in the same interval to the South, and another to the headquarters of the Association's business interests—Chicago. These points should be considered by the members, and especially by the delegates, with a view possibly to deciding on some definite plan for the annual sessions at so favorable a time as the present when there is no contest between rival places to be adjusted.

EARLY STAGES OF THE TUBERCLE BACILLUS.

A remarkable contribution to the bacteriology of tuberculosis has recently been made by E. Klebs[1] which, if it receives confirmation, will revolutionize our methods of diagnosis of this disease. Klebs has for some time insisted that our knowledge of the *Bacillus tuberculosis* is confined to the completely developed organism—to the stage when the bacillus contains fatty substances which enable it to take the Ziehl-Neelsen stain. The earlier stages, however, before the formation of fat, should be demonstrable in tissues which are undoubtedly tuberculous, as shown by histologic examination, but which contain no bacilli staining by the usual carbol-fuchsin-nitric-acid method—as, for instance, tuberculous lymph glands, testicles and tuberculous lesions of the skin. By cultivating the tubercle bacilli in fluid media, Klebs claims to have succeeded in demonstrating the early, fat-free stages of development of this organism. Staining such cultures by Ziehl-Neelsen shows at first no acid-proof rods, only a fine granular ground substance, which, after thorough staining with borax-methylene blue, is seen to consist of extremely small granules and rods, the former predominating in the first, "veil-like" growth, the latter in a later stage when the growth has become denser and white. In the third stage, the usual yellowish culture, the acid-proof rods appear. Thus the granules and tiny, fat-free rods are to be regarded as forerunners of the tubercle bacillus as we know it. If these observations prove well founded, we may have to pass under review our previous conceptions as to the distribution of tuberculosis, for the only lesions now recognized as such are those in which, at some time, if not invariably, the acid-proof bacillus has been demonstrated. We shall also be obliged to adopt new methods for the clinical examination of suspected fluids and tissues. Dr. Klebs announces his intention of devoting his whole time to the study of this question, and his results will be awaited with interest.

1. Die kausale Therapie, vol. i, 1904, p. 188.

THE PURSUIT OF NOVELTIES IN MEDICINE.

The tendency to overvalue the new and strange at the expense of the old and tried, with the resultant faddism, is a characteristic of human nature, and is of necessity found in physicians as in the rest of mankind. The tendency undoubtedly leads to the rapid adoption of new methods of value, but it also leads to the widespread use of many methods of very doubtful worth. The recent address of Sir Dyce Duckworth[1] is really a protest against the indiscriminate adoption of new appliances, and the indiscriminate use of new drugs and methods of treatment. There is much truth in Dr. Duckworth's remarks concerning the use of so-called instruments of precision in the modern study of disease. While of the greatest value in some instances, there can be no question that their use has led on the whole to a decay of the powers of observation dependent on the use of the unaided senses. The trouble lies, of course, not with the instruments themselves, but with those who use them. The indolent streak which is present in most of us causes us to be on the lookout for short cuts and quick methods, and we are apt to grasp at the latest appliance as the diagnostic philosopher's stone for which we have so long been searching. Then, again, the profession as a whole has apparently not yet learned that the results obtained by the use of instruments of precision are to be correlated with the clinical findings, and not to be treated as separate and exact data. Dr. Duckworth's address also contains a protest against the reckless administration of the many new drugs with which the market is flooded. Speaking from the standpoint of an old practitioner, he reviews the history of most of these preparations, and shows that, as a rule, they have fallen into disuse in two or three years after their introduction. It is impossible, as he points out, for the busy practitioner

1. British Medical Journal, June 11, 1904.

to properly inform himself as to the action of these new remedies except by trying them on his patients—a very unjustifiable procedure. His address intimates that in his opinion the well-recognized and standard remedies are being greatly neglected for others, about which we know but little.

FOREIGN EMBRYONAL CELLS AS CAUSE OF CANCER.

A scientific theory certainly challenges attention when it is based on logical reasoning and is sustained by the successful results of five out of seven inoculations of animals, and by the positive findings of the biologic, prepared-serum test. All this evidence has been accumulated by George Kelling[1] of Dresden, in favor of his theory that malignant tumors are due to the parasitic action of foreign embryonal cells. He shows how frequently living embryonal cells may gain entrance to the body, as, for instance, in raw or imperfectly cooked eggs, in fishes' or insects' eggs, in the food or drinking water, or they may be inoculated by the bites of insects. Reasoning from these premises, he inoculated fourteen dogs with a small amount of a suspension of hens' eggs ground in a mortar and mixed with physiologic salt solution. Seven of the animals were killed in the course of a few weeks, and in five a malignant tumor was found to have developed. The first dog had been injected in the testicle and femoral vein, and a tumor showing the structure of a round-celled sarcoma was found in the testicle, and another, as large as a cherry, with the structure of a malignant adenoma, was found in the liver. The second dog had been injected in the vein on a loop of small intestine, and when killed sixty-nine days later the liver was found permeated with a malignant growth, with two tumors resembling malignant adenomata. The other dogs were injected in the liver or vein nearby, and two developed a spindle-celled sarcomatous growth in the liver, the fifth dog an alveolar malignant tumor. His communication is accompanied by illustrations of the microscopic findings which apparently confirm his assertions. His theory is further sustained by the positive findings of the biologic, specific test for albumin. He was able to demonstrate by this means that in two cases of carcinoma of the pylorus albumin from the hen was present along with the human albumin. Some of the carcinoma substance was injected into rabbits to produce a "prepared serum" for the biologic test. This serum induced precipitation in the cancer extract, as also in human blood and in hens' blood, but there was no precipitation in blood from other sources, nor when normal rabbit serum was used. He remarks that as this test is considered reliable enough for forensic purposes, these findings are strong confirmation of the assumption that the two women with carcinoma of the pylorus had embryonal hen flesh in their malignant growths—pounds of it, as the growths were so extensive. Kelling does not hesitate to announce that the problem of the etiology of malignant tumors is on the right road to solution by adoption of this theory. The assumption of metaplasia as the cause of malignant tumor formation must be abandoned. The positive outcome of the biologic tests with prepared serum suggests the entire prophylaxis and therapy of malignant tumors, he thinks, and he has already instituted treatment of carcinomata on this line. Aberrant embryonal cells may induce a tumor in the organism, of auto-origin, but he is convinced that such tumors are benign in their nature. The malignant ones are those due to foreign embryonal cells. Their susceptibility to radiation he cites as another argument in favor of his theory. Every contribution on the subject of the etiology of cancer is interesting, and control researches by others of Kelling's researches are now in order, to determine the truth of the general biologic law of foreign-cell parasitism in tumor formation. A promising field of research is outlined by his suggestion in regard to study of embryonal cells, of auto-origin, in the embryo, as, for instance, in eggs.

1. Münchener med. Woch., vol. li. No. 24, June 14, 1904.

THE PRACTICE OF MEDICINE.

The practice of medicine is variously defined, but the most limited application of the term is made by those who wish to practice medicine without complying with the reasonable requirements of law. The profession is always glad to see judges look at the matter in a broad way, as Judge Davis of the Court of Quarter Sessions of Philadelphia has done. His charge to the jury in the case of one Thomas E. Eldridge contains a clear and concise statement that is worth quoting:

First.—The practice of medicine consists in the offering of service and assuming the responsibilities of treating diseases, deformities and injuries, no matter by what means this is professed to be done.

Second.—Every state, because of the inherent nature of the calling of medicine, possesses the right both constitutionally and legally to demand a standard degree of qualification which will protect citizens from the consequences of incompetency and unskilled practice.

Third.—Anyone practicing medicine without the license of the state, which license is on the part of the state a guarantee of the possession of the qualification to safely pursue medical practice, is an illegal practitioner.

Everyone, therefore, who offers service as outlined, no matter by what means he professes to treat diseases, deformities and injuries, must, as a condition precedent thereto, have obtained the license in accordance with the laws of the commonwealth as finds them so doing.

This makes the practice of medicine—so far as the jurisdiction of the court in question is concerned—consist of the offering of service as a physician and the assumption of the responsibility of treating disease. The means used is not a matter of vital importance and the attempted evasion of the law by the defense that the alleged doctor did not prescribe drugs, etc., was seen to be a fallacy by the impartial judge. The trial developed the fact that the defendant had a diploma from an institution called the Eastern College of Electro-Therapeutics, and that he was practicing on the basis of that authority, pretending to be exempt from the medical practice law of the State of Pennsylvania. This calls attention again to some institutions which, although they pretend to give regular courses of instruction in certain branches, are little better than diploma mills, in that they turn out half-educated men who are prejudiced against the science of medicine in its broad sense, and who are ready to evade the laws of the state wherever they require more education than these would-be doctors possess.

Medical News.

CONNECTICUT.

Infectious Diseases.—During June 391 cases of measles were reported in 49 towns, 138 cases of scarlet fever in 30 towns, 24 cases of cerebrospinal fever in 7 towns, 107 cases of diphtheria and croup in 28 towns, 60 cases of whooping cough in 13 towns, 24 cases of typhoid fever in 15 towns, and 21 cases of consumption in 13 towns.

June Mortality.—The State Board of Health states that, according to the reports received, there were 1,128 deaths during the month of June. This was 189 less than in May and 35 less than in June of last year, and 45 more than the average number of deaths in June for the five years preceding. The death rate was 15 for the large towns, for the small towns 11.3, and for the whole state 14.1. The deaths reported from infectious diseases, including diarrheal, were 142, being 12.5 per cent. of the total mortality. During the month there were 1,968 births.

ILLINOIS.

Chicago.

Personal.—Dr. P. J. H. Farrell, who was severely injured in the Wabash train wreck, July 3, is recuperating on his farm in New York State.

The Better Milk Crusade.—Suits against 314 delinquent milk dealers were successfully prosecuted during last week by the department of health. The highest penalties, $50 and costs, were inflicted on two classes of offenders—those selling below-grade milk after warning and those found guilty of using preservatives, chiefly formalin.

Decreased Death Rate Among Children.—The department of health, in its weekly bulletin, again calls attention to the value of education in sanitary and hygienic matters as a preventive of sickness and death among children. It reports that in 1870 there was a proportion of something over 150 children's deaths in every 10,000 of the population. Thirty years later—that is, in 1900—there was a proportion of less than 49 children's deaths in every 10,000—a decrease of more than two-thirds (67.5 per cent.) in a single generation.

INDIANA.

Sickness and Death in June.—The monthly bulletin of the State Board of Health says:

> There was a marked improvement in the public health in June as compared with the preceding month, and also with the corresponding month in 1903. There were fewer deaths and fewer cases of transmissible diseases. Rheumatism, as was also the case in the preceding June, was the most prevalent disease. Typhoid fever prevailed unusually at Indianapolis, but was less than in May. The center of smallpox shifted from Clay to Jackson County, but in the whole state there was a 50 per cent. improvement as compared with June, 1903. There were three smallpox deaths, two in Linton and one in Mt. Vernon. The total number of deaths was 2,203, rate 10.1. In same month last year, 2,285 deaths, rate 10.9. Of the total number 14.1 per cent. were under 1 year of age and 27.4 per cent. were 65 and over. Some important causes of death were: Consumption, 317, 11 more than last June; typhoid, 44; diphtheria, 15; scarlet fever, 9; measles, 10; diarrheal diseases, 53; brain fever, 14; influenza, 10; childbed fever, 11; cancer, 71 (almost double typhoid), and violence, 125.
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> The country death rate was 8.2 in 1,000, and the city rate 13.6. The country disease rates were lower for every disease than the city rates. Of the tuberculosis deaths, 317 were of the pulmonary form. Of this number 167 were males and 150 females. It invaded 206 homes, made 82 widowers, 30 widows and 224 orphans under 12 years of age. How long will the people of Indiana permit this preventable disease to rip them up in this way every month? Of the 125 deaths by violence, 6 were murders, 22 suicides and the remainder accidental.

KENTUCKY.

Louisville.

Personal.—Dr. J. Q. Furnish has resigned as superintendent of the Lakeland Insane Asylum.

Faculty Additions.—Kentucky University Medical Department, holding an all the year session, divided into four semesters, has enlarged its faculty by the election of the following: Dr. Adolph O. Pfingst, formerly connected with the Louisville Medical College, to the chair of physiology, eye, ear, nose and throat; Dr. Roe L. Edmonds, professor of embryology and obstetrics; Dr. V. E. Simpson, professor of materia medica, therapeutics and hygiene. A number of others have been added to the list of lecturers and instructors.

MARYLAND.

Baltimore.

Personal.—Dr. Susie A. Price, former resident physician at the Hospital of the Good Samaritan, has gone to Marlinton, W. Va., to practice.

Health Report.—During the week ended July 16, there were 249 deaths, a death rate per 1,000 of 23, the white rate being 21.96, the colored 31.57. Cholera infantum led with 65 deaths, followed by consumption, 25; Bright's disease, 16; cancer, 14; heart disease, 8; pneumonia had dropped to 4. No cases of smallpox were reported this or the preceding week.

Some Summer Outings.—Dr. C. C. Bombaugh is at Newport.——Drs. B. Merrill Hopkinson and Ira Remsen are at Prout's Neck, Maine.——Dr. Staige Davis is at Northeast Harbor, Maine.——Dr. Curtis Burnam is in Frankfort, Ky.——Dr. Rufus I. Cole has returned from a visit to South Bend, Ind.——Dr. Irving Miller is on a cruise up the Hudson and Lake Champlain.——Dr. H. Boyd Wylie is at Atlantic City.——Dr. J. J. Mills is at Webster Springs, W. Va.

The Church Home and Infirmary is to be enlarged and improved at an expense of $40,000. A new building will be erected, 110x42 feet, of brick, three stories high. On the first floor there will be a refrigerating plant, bathrooms, storeroom, etc. On the second floor will be the home for trained nurses with a capacity of 30 nurses. The third floor will be devoted to medical cases, with sun parlor for convalescents. A small building on the corner of the grounds will be used for such contagious diseases as originate in the institution or are admitted inadvertently. Electric lighting will be furnished by the home's own plant. Dr. Frank D. Gavin is physician and general superintendent.

MICHIGAN.

Mortality During June.—Total deaths reported for June numbered 2,445, a decrease of 492 from the preceding month. The death rate was 11.9 per 1,000 population. This number, while low, is still somewhat higher than the corresponding rate for June, 1903. By ages, there were 405 deaths of infants under 1 year, 109 deaths of children aged 1 to 4 years, and 688 deaths of persons aged 65 years and over. Important causes of death were as follows: whooping cough, 7; scarlet fever, 22; typhoid fever, 30; measles, 35; diphtheria and croup, 44; pneumonia, 130; cancer, 135; accidents and violence, 183, and tuberculosis, 227, including 189 from pulmonary tuberculosis and 38 from other forms. Five deaths from smallpox were reported. There were also two deaths from tetanus, one in the city of Charlotte, following kick of a horse, and one in Suttons Bay township, Leelanau County, following an explosion of gunpowder. This number may be noted for comparison with deaths returned for the following month, as the result of fourth of July accidents.

Two Neglected Important Causes of Sickness.—At the regular quarterly meeting of the Michigan State Board of Health, at Lansing, July 8, 1904, Dr. Baker, special committee on the subject, reported the results of an investigation of the prevalence in Michigan of gonorrhea and syphilis, during the first half of 1904, as follows:

> Of the regular weekly card reports, made by representative physicians in general practice relative to sickness from 29 prominent diseases, 27 per cent. of all the reports stated the presence of gonorrhea, and 22 per cent. stated the presence of syphilis. The reports were received from 29 cities, 62 villages and 8 townships. The average number of weeks gonorrhea was reported from each of the cities was 6.4, and of syphilis, 5.8. In each village the average number of weekly reports of gonorrhea was 3.7, and of syphilis, 2.5. In each township the average number of weekly reports of gonorrhea was 2.8, and of syphilis 7. Arranging the 29 diseases in the order of their greatest reported prevalence during the 24 weeks, only 5 diseases exceeded gonorrhea and only 9 exceeded syphilis in the apparent sickness therefrom. Much of the success of this investigation was due to the fact that the name of any individual having either of these diseases was not required, therefore the reports were probably complete.

NEW YORK.

Italian Medical Society in New York.—A number of Italian physicians have organized the Italian Medical Association of the State of New York. The first meeting was held at 198 Grand Street, New York City, June 8, and nearly two dozen Italian physicians signed the charter. The *Gazzetta Medica* for June contains the report of the meeting, and will be the official organ of the association.

Buffalo.

Personal.—Dr. Edward Clark, assistant health commissioner, is suffering from neuritis.——Dr. Max Breuer has gone to northern Michigan.

European Trips.—Drs. W. A. Renner and George Himmelsbach will spend several months in Europe. Dr. William W. Plummer and Dr. J. W. Gillis have returned from Europe.

Tetanus Antitoxin for Distribution.—Health Commissioner Greene announces that the city is now prepared to disinfect premises for contagious diseases. The health department will also furnish gratis tetanus antitoxin when called on.

Mortality in June.—The monthly report of the department of health for June, 1904, shows an annual death rate of 11.52 per 1,000. The following are the principal causes of death: Consumption, 39; cerebrospinal meningitis, 5; cholera infantum, 5; diphtheria, 7; debility, 32; cancer, 18; apoplexy, 15; arteriosclerosis, 5; valvular diseases of the heart, 26; bronchitis, 9; pneumonia, 25; appendicitis, 8; nephritis, 25; violence, 30. Total deaths for June, 1904, were 365, as compared to 406 deaths in June, 1903. This is an extremely low death rate, and proves Buffalo one of the healthiest summer cities in the world.

New York City.

Personal.—Dr. Walter G. Whiton sailed for Naples, July 9, to remain until October, visiting various medical centers in Europe.

The New Bellevue Hospital.—The trustees of this hospital expect to commence the erection of the new pavilions next autumn. The plans have been drawn and the board of estimate has authorized a large appropriation for its erection. The present institution has 900 beds, and receive about 24,000 patients annually. It contains an amphitheater seating 300 students.

Contagious Diseases.—For the week ending July 9 there were reported to the sanitary bureau 359 cases of tuberculosis, with 136 deaths; 297 cases of diphtheria and croup, with 29 deaths; 261 cases of measles, with 15 deaths; 95 cases of scarlet fever, with 13 deaths; 39 cases of typhoid fever, with 9 deaths; 29 cases of varicella; 1 case of smallpox, and 34 deaths from cerebrospinal meningitis.

The Contagiousness of Pneumonia.—The board of estimate has appropriated $10,000 to defray the expenses of a commission of medical men to pass on the question whether or not pneumonia is contagious. The number of deaths from pneumonia has been unusually large this year, and the cases seemed to be confined to certain localities. Before the board of health goes to the expense of disinfecting houses Dr. Darlington, the health commissioner, wishes that it be definitely settled whether this disease is contagious.

OHIO.

Personal.—Dr. J. J. Maloney, Cincinnati, when alighting from his buggy recently, fell and broke his left arm.

Western Reserve Faculty Changes.—At the June meeting of the trustees of Western Reserve University the following appointments were made in the Medical Department: Torald Sollmann, professor of pharmacology and materia medica; Frederick Clayton Waite, associate professor of histology and embryology; Roger G. Perkins, assistant professor of bacteriology and pathology; John M. Ingersoll, assistant professor of otology, rhinology and laryngology; William R. Lincoln, assistant professor of otology, rhinology and laryngology; a number of others were appointed lecturers and demonstrators as follows: H. A. Becker, lecturer on fractures and dislocations; C. E. Briggs, instructor in surgery; Percy W. Cobb, demonstrator in physiology; F. S. Clark, demonstrator in obstetrics; Charles D. Williams, demonstrator in gynecology; E. D. Brown, demonstrator in pharmacology and materia medica; J. B. Austin, demonstrator in histology and embryology.

PENNSYLVANIA.

Site for State Hospital.—The commission appointed by the last legislature to select a tract of land for the state hospital for the feeble-minded and epileptics has decided on a tract of 300 acres along the Schuylkill river near Spring City, Chester County.

To Improve Crowded Asylums.—Schuylkill County Insane Asylum, which a grand jury recently condemned, is to undergo important changes. The county commissioners have appropriated $5,000 for the erection of a new ward at once. Other improvements are to follow.

Philadelphia.

Personal.—Dr. Florence H. Richards and Dr. Elmer E. Brown sailed for Europe July 16.——Dr. William Easterly Ashton sailed for Europe July 14.

New Nurses' Home.—A new home for nurses is to be erected by the Woman's Hospital. The plans call for a four-story brick fire-proof building, with 40 dormitories, a roof garden, a fire tower stairway, and a driveway through the building to the large hospital grounds.

Cornerstone Laid at Methodist Hospital.—The cornerstone of the Mary J. Hunter Memorial Home for Nurses of the Methodist Episcopal Hospital was placed this week. The cost of the building will be $25,000. It will be a three-story structure, and constructed of red stretcher brick, with trimmings of terra cotta. The building will accommodate 50 nurses. The work on the new power house and electrical plant has also been started.

Health Report.—There was a slight increase in typhoid fever during the week, 68 new cases being reported. This is an increase of 8 over those of last week, and an increase of 28 over those reported in the week before. Eighteen deaths resulted from the disease last week. The disease seems to be scattered throughout the entire city. Only one new case of smallpox was reported. The general death rate continues high, the total number for the week being 483. Of this number 108 were attributed to diseases of infants. The total number of deaths for the week shows an increase of 39 over those of last week, and a decrease of 63 from those of the corresponding week of last year.

Lectures to Philadelphia Mothers.—The third of the plain talks to mothers, arranged by Dr. Martin, director of the Department of Health and Charity, was delivered by Dr. Elizabeth L. Peck, July 14, who spoke on the early symptoms of contagious disease. Six other weekly talks have been planned, as follows: July 21, Dr. Wilhelmina T. Nelson, on "Care of the Eyes and Contagious Eye Troubles"; July 28, Dr. George B. Wood, "The Throat and Nose"; August 4, Dr. Thomas O'Hara, "Simple Exercises for Children"; August 11, Dr. Frances G. Crouch, "Care of the Teeth"; August 18, Dr. Augustus A. Eshner, "Consumption"; August 25, Dr. Edith H. Cadwalader, "Connection Between Dirt and Disease."

New Contagious Disease List.—A complete revision of the contagious disease list of the city was made at the last meeting of the board of health, and under the new regulations the list is greatly increased. A circular letter has been prepared by Dr. A. C. Abbott, president of the board, which will be mailed to every physician in the city. This points out the fact that the old list of contagious diseases to be reported under penalty did not contain all the transmissible ones, and emphasizes the importance of the prompt reporting of any of the new cases added to the list, which is as follows: Cholera, yellow fever, malarial fever, typhoid fever, typhus fever, scarlet fever, smallpox, chicken pox, diphtheria, diphtheritic croup, cerebrospinal meningitis, measles, rubella, whooping cough, tuberculosis (in any of its manifestations), pneumonia, erysipelas, puerperal fever, plague, trachoma, leprosy, tetanus, glanders, hydrophobia, and anthrax. Chicken pox is placed on the list because three out of five cases recently reported were found by the medical inspectors to be smallpox.

GENERAL.

Yellow Fever Scarce in Mexico.—Reports from Mexico report the republic practically free from yellow fever. There are very few cases. The improvement is attributed to the active inspection and the use of oil and screens.

Congress of French-Speaking Physicians of America.—The first congress of this kind was held at Quebec in June, 1902, and the second has just closed its sessions at Montreal. Both were well attended and successful. Professor Pozzi was the official delegate from the Paris Académie de Médecine, the French Surgical Association and the Paris medical faculty, and his address on his method of treating sterility was one of the features of the congress. The class of cases to which he refers is those in which the uterus retains its infantile aspect, the cervix immoderately long and well developed in proportion to the infantile rest of the organ, which is in anteflexion. The neck of the uterus is more or less conical, the orifice punctiform. As the uterus is flexed, the emission of the menstrual flow through the small opening is more or less difficult and dysmenorrhea and sterility are the result. Slow dilatation with laminaria may cure the condition, supplemented by temporary dilatation with Hegar bougies just before the menstrual period. If this fails, a deep bilateral incision is indicated. This intervention may induce hemorrhage, or entail angular cicatrization or infection, but, on the other hand, it will probably restore the uterus to normal position—just as a longitudinal

incision in a curved rubber tube will straighten it—and the intervention will further put an end to the dysmenorrhea and the sterility. It also cures the catarrhal condition frequent in such cases, which adds to the causes of sterility by the mucous plug in the meatus. To avoid angular cicatrization it is necessary to cover the denuded surfaces with mucosa. This is accomplished by cutting out a small prism in each cut surface, drawing together and suturing together the two edges of these prism-shaped gutters. This leaves the cervix entirely lined with mucosa, the internal os gaping. The uterus is straightened; the catarrhal conditions can then be treated by local applications; dysmenorrhea of mechanical origin is always cured and fecundation has followed in 33 per cent. of the cases of women sterile for many years after marriage, operated on by Pozzi or his pupils by this technic. He calls it: "stomato-plastie par évidement commissural du col." The needles used must be very fine and sharp, and the suture be done with silver wire. To protect the vagina against the ends of the wire a piece of shot is squeezed on them. Immediately after the operation the lips of the cervix gape as after a laceration, but they soon retract, as there is no pathologic scar tissue as in a tear. By the end of two or three months not a trace is left of the operation. Pozzi's address is published in the *Revue Médicale du Canada*, with other details of the congress. The next one will be held at Trois-Rivières in 1906.

CANADA.

Maritime Medical Association.—The fourteenth annual meeting of the Maritime Medical Association was held at Halifax, July 6 and 7, about seventy members being in attendance. It was decided to meet next year in Charlottetown, P. E. I. The Canadian Medical Association will be invited to meet in Halifax in 1906. The following officers were elected: President, Dr. S. R. Jenkins, Charlottetown; vice-presidents for New Brunswick, Dr. G. C. Vanwart, Frederickton; for Nova Scotia, Dr. G. E. Dewitt, Wolfville; for Prince Edward Island, Dr. J. Kelley; secretary, Dr. T. D. Walker, St. John; treasurer, Dr. Huntley Macdonald, Antigonish, N. S.

Infant Mortality Continues Unabated in Montreal.—Still more infants died in Montreal during the past week than during the previous week, the number being 133. Of these 82 were under six months of age. The total deaths last week in Montreal amounted to 217, of whom 187 were Catholics, 23 Protestants and 7 Jews. The normal death rate of the city is 120. During the week there were seven deaths from typhoid fever, a disease which would appear to be spreading in the city. Dr. Laberge, the medical health officer, when interviewed on the subject, stated that the exceeding great mortality among infants was causing his department a great deal of concern. He strongly approved of the steps being taken to improve the milk supply and hoped that the citizens would organize a society to look after educating poor mothers how properly to care for and feed their offspring.

Toronto General Hospital Appointments.—The trustees have appointed the following house staff for 1905-6: W. B. Wright, Toronto; N. McLaurin, Toronto; W. A. McCauley, Warkworth, Ont.; A. J. Fraleigh, Bloomfield, Ont.; T. W. Rowntree, Thistleton, Ont.; N. O. Fisher, Ashgrove, Ont.; T. K. Cullen, Parkdale, Ont.; J. A. Ollie, Sparta, Ont.; G. E. Smith, Toronto; W. E. Gallie, Barrie, Ont.; T. Hair, Lavender, Ont.; G. E. Greenway, Little Britain, Ont.; W. B. Hendry, Toronto; H. R. Elliott, New Sarum, Ont. The outdoor staff is to be A. W. Canfield, Woodstock, E. A. McCulloch, Thomasburg, Ont.; A. C. C. Johnston, Toronto; W. S. Turnbull, Goderich, Ont.; T. P. McKinnon, Toronto; W. S. Pawns, Udora, Ont. The trustees also decided to appoint two official anesthetists and one medical and one surgical registrar and one resident pathologist. Applications for the above appointments are to be sent to the secretary with qualifications.

Executive Health Officers of Ontario.—The nineteenth annual meeting of the Association of the Executive Health Officers of Ontario was held at Sarnia, Ont., July 13 and 14. Dr. Hodgetts, the secretary of the Ontario Board of Health, contributed a paper on "Improved Methods of Treating Consumption," which evoked considerable discussion and resulted in a resolution being passed recommending that an order in council be passed making it obligatory on all physicians in Ontario to report all cases of tuberculosis to the local health officer. Recommendation was also made for a system of district health officers who would be amply paid for their work, and could act for a large territory. The quarterly meeting of the Ontario Board of Health was also held. The secretary's report for the past quarter showed a gratifying decrease in the number of scarlet fever cases in Ontario, from 983 to 408, attributable largely to better isolation. Smallpox and measles showed an increase and more vigorous vaccination was urged.

FOREIGN.

French Congress of Internal Medicine.—The seventh congress of internal medicine will open at Paris, October 24. The subjects to be discussed are: "Arterial Pressure in Diseases," "Mercurial Injections," and "Obesity." Further particulars may be learned by applying to the secretary, Ed. Enriquez, 8 avenue de l' Alma, Paris.

French Congress of Surgery.—The seventeenth annual session of the French Congress of Surgery will be held at Paris, October 17 to 19. Three questions have been appointed for discussion: "Surgical Treatment of Cirrhosis of Liver"; "Semeiologic Value of Examination of the Blood in Surgery," and "Traumatic Detachment of the Epiphyses."

The Ten-Thousandth Microscope.—Microscopy has felt the impetus of bacteriology to such an extent that a German firm that manufactures high-grade microscopes has made nearly 10,000 of these instruments. The ten-thousandth is being made with special care, and is to be presented to Koch as a token of appreciation for his pioneer work in bacteriologic microscopy.

Subjects for Munich Prize Essays.—The first subject is announced by the medical faculty as follows: "It has been stated that mice can not be adequately nourished with pure food stuffs (albumin, fats, carbohydrates, mineral salts and water). Other investigators, on the other hand, have succeeded in accomplishing this. The faculty offer a prize for research in this line on pigeons, which can readily be fed on mixtures of the pure food stuffs." The subject announced for this year is given out again for further study for next year's competition: "Study of the Structure of the Germinal Vesicle in a large Vertebrate."

Koch Released from Official Duties.—Robert Koch will retire, October 1, from the position of director of the Institute for Infectious Diseases at Berlin. His place has been taken by G. Gaffky of Giessen, his earliest assistant and companion during his trips to Egypt and India, which resulted in the discovery of the cholera bacillus. Gaffky's work in bacteriology and public hygiene has already won him international appreciation. Koch retains his laboratory in the institute for his personal researches. The Prussian government has conferred on him the highest scientific office at its disposal by appointing him "honorary" professor and member of the Academy of Sciences. This confers the full salary of a professor, with the privilege of lecturing at any time or not, as the incumbent may desire. Koch succeeds Virchow in this position, only two others of the kind having been created. One is held by the astronomer, Auwers, and the other by van t'Hoff, famed for his physico-chemical researches.

Postmortem Delivery.—A woman with the diagnosis of yellow fever was taken from an arriving ship to the isolation hospital at Bordeaux, France. She died within a few hours after her arrival, and her father instituted proceedings against the two physicians at the hospital. Exhumation forty days after burial showed that the woman had been delivered postmortem of a seven months' fetus, and the father claimed that she had been buried alive. Two local medicolegal experts testified that there were no evidences of yellow fever to be discovered, that the fetus must have been viable, and that the woman could not have been buried alive, because a physician had been present from her death to her burial, although, as they stated they had found her eyes open. The sensational details have been thrashed over and over again in the lay press, as the case has dragged along through four years, but finally, on the testimony of Brouardel and other Paris experts, the physicians have been honorably acquitted, as the scientific evidence was shown to be all in their favor. Our French exchanges comment on the long martyrdom to which the two physicians have been subjected during these four years, simply because the first expert testimony was bungling and scientifically incomplete.

The International Woman's Congress from the Medical Standpoint.—A medical correspondent describes in the *Münch. med. Wochenschrift* the recent international congress of women, held at Berlin in June. The organization and carrying out of the details were admirable, and good work was done in every department. Madame Weber of Heidelberg discussed the subject of women in science, and the pioneer medical woman of Germany, Frl. Dr. Tiburtius of Berlin, stated that women physicians are now employed in many general hospitals,

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etc., in Germany, and that a number are officiating in special institutes, insane asylums, etc. The resistance to the admission of women to the medical profession was peculiarly strong in Germany, but the question has been decided in favor of the women. In conclusion the correspondent comments on the remarkable interest and endurance manifested by the participants in the congress and the audience. Women who are constantly complaining to their family physician that they are unable to sit still for any length of time, and who suffer from headache, palpitations and suffocation, even in a short stay in a vitiated atmosphere, these women would sit for hours, without stirring, in the hot, crowded hall, following every speaker with the closest attention, and not feeling either headaches or the tendency to suffocation. He regards his observations of these women as an interesting contribution to the question of "employment therapy" in nervous conditions.

Recent Progress in the Campaign Against Tuberculosis Abroad.—Heimbeck of Norway stated at the recent International Antituberculosis Conference that small sanatoria were being constructed in the various communities in his country and temporary aid supplied to families fighting tuberculosis—the funds derived from the profits of the government monopoly of the liquor trade. Brouardel of France stated that the French Antituberculosis Federation now groups thirty-eight different organizations or institutions, founded by private initiative, beside the public institutions. A committee comprising von Schrötter of Germany and Landouzy of France was appointed to draw up a general schedule for study of the predisposition to tuberculosis, so that physicians of all countries can work along identical lines. Leon Dereeq was entrusted with the task of preparing a model of what he calls the individual sanitary pass-book (livret sanitaire individuel populaire). Details in regard to diseases, environment, etc., are to be noted down under proper headings, thus forming the nosologic tree of the family and individual, like the genealogic tree. The advantages of special antituberculosis dispensaries, such as are described in the editorial on page 33, are being proclaimed more and more. The one founded by Calmette at Lille is serving as a model, and others are now planned at Berlin and elsewhere in Europe. The Germans have coined the term *Fürsorgestellen* for them. They are not intended to conflict with any of the measures and institutions already in existence, but merely to try to do what they necessarily leave undone. They require the co-operation of charitable persons or societies in order to accomplish their aims.

Organization of the Profession in Germany.—The organization and purposes of the Leipsic Verband have been described in these columns from time to time. The fourth annual general assembly was held at Rostock, June 23, with 219 delegates in attendance. The last year has been the crucial year of the existence of the Verband—the demands for aid from physicians in their struggle with the sickness insurance societies have been almost continuous since the new legislation went into effect May 1. (See page 1435 of the last volume.) The Verband has now almost 16,200 members, more than 400 members having been added since last January. It has interfered in 208 cases of conflict between physicians and the insurance societies, all but 43 being within the last few months. The results were in favor of the medical men in all but 3 instances. At the present moment a conflict is still on at 76 different places. The hardest battles were fought at Cologne and Leipsic, and in each case the federal authorities interfered on behalf of the physicians, who thus gained most of their points. The Verband also does a large business in supplying medical positions, etc. In the first five months of 1904 fully 988 matters of this kind passed through its hands, and 516 were satisfactorily concluded. An organ of its own has become necessary, and this is provided by the *Aerztlichen Mitteilungen*, published by Back of Strasburg. The office force has been increased from 3 to 10; 35,000 letters or circulars have been mailed from the office during these five months. Besides the income from dues, the treasury has received voluntary gifts amounting to $12,500. In the discussions that followed the reading of the reports the delegates were enthusiastic in their commendation of the executive ability displayed by the directors of the Verband and the great work they have accomplished. The treasury at present is able to meet easily all demands—even very comprehensive ones. The officers of the Verband urged that special efforts should be made to interest the younger medical men in the organization of the profession, adding that a very effectual mode of interesting them would be by developing more and more the employment department of the Verband, obtaining positions for young applicants. Old established physicians can and must co-operate to this end. The beneficial results will be far-reaching and durable.

PARIS LETTER.

Appendicitis.

The advisability of operating for appendicitis in its initial stages is more than ever a subject for discussion among members of the medical profession here as well as with the public. The recent death of the daughter of a prominent American, who was operated on for acute appendicitis, has caused some discussion in the American colony in Paris, and the Paris edition of the *New York Herald* has received various letters from correspondents who air their views on this subject. Dr. Gilbert, professor extraordinary at the Faculty, suggests a theory for the causes of appendicitis. It may be due, like other diseases, such as mumps, angiocholecystitis, mucomembranous enteritis or pancreatitis, to a defective condition of the organism, which allows the invasion and multiplication of bacteria. This condition is liable to exist in certain families, and explains the frequence of appendicitis among the members of such a family. Jaundice or liver trouble, which is sometimes associated with this disease, is not so much a consequence of the disease as a result of the primary weakness which allows the patient to become infected. An autopsy on patients dying from appendicitis often shows that the lesions of the liver are of an earlier date than those of the appendix. He calls this family tendency the "diathesis of auto-infection," which term, he thinks, should be substituted for "arthritism." His latest communication on the subject was given in the *Presse Médicale* of April 27, No. 34.

Correspondence.

The Treatment of Leukemia and Pseudo-Leukemia with Roentgen Rays.

CHICAGO, July 6, 1904.

To the Editor:—In THE JOURNAL, July 2, 1904, there is a report of a case of leukemia treated with *x*-rays by Grosh and Stone. The article begins, "In August, 1903, Senn reported an apparent cure of a case of myelogenous leukemia under the influence of Roentgen rays," and ends, "This report is submitted because of the scarcity of reported cases, in the hope that other workers will soon take up investigations in this field." In the same issue of THE JOURNAL there is an abstract from the *Muenchener medicinische Wochenschrift* on the influence of Roentgen rays on lymphoid tissue, in which it is said, "Heinecke adds a note in correcting the proof of his article that his theoretical assumptions have already received confirmation by the news from America that Senn and Crane have cured cases of leukemia and pseudo-leukemia by Roentgen treatment."

I have before me articles published since the beginning of this year on the treatment of pseudo-leukemia and leukemia by Steinwand, Finch, Grad, Brown, Bryant, Taylor and Grosh and Stone—as far as I know all of the articles which have appeared during this time. In two of these articles there is no reference to previous work, and in the other five the first work in this field referred to is Senn's reports in 1903 of a case of leukemia and two cases of pseudo-leukemia treated with *x*-rays. It would seem, therefore, that the impression is general that the first work in the treatment of leukemia and pseudo-leukemia with *x*-rays was that of Senn. This error has apparently arisen from two facts: First, from the prominence of the reporter of Senn's cases; and, second, from the fact that in Senn's reports of his cases there is no reference to the previous use of *x*-rays in the treatment of either leukemia or pseudo-leukemia. The facts, however, are these: Senn reported in the *New York Medical Journal*, April 18, 1903, two cases of pseudo-leukemia which had been successfully treated with *x*-rays, and in the *Medical Record*, Aug. 22, 1903, he reported "A Case of Spleno-Medullary Leukemia Successfully Treated by the Use of the Roentgen Ray." He does not make any reference in either of these articles to previous work with *x*-rays in either leukemia or pseudo-leukemia. Previous to this time, however, the following reports of cases of

leukemia and pseudo-leukemia treated with Roentgen rays (in most cases with symptomatic cure) had been made: Of pseudo-leukemia: Childs, *Medical News*, January, 1903; Dunn, *American Practitioner and News*, October, 1902; Hett, *Dominion Medical Monthly*, August, 1902; Williams, in his book on "Roentgen Rays," published about March, 1902; Pusey, THE JOURNAL A. M. A., Jan. 18 and April 12, 1902. Of leukemia: Pusey, THE JOURNAL A. M. A., April 12, 1902, and in his book on "Roentgen Rays," published in June, 1903.

My first cases of pseudo-leukemia treated with Roentgen rays were demonstrated before the Chicago Medical Society, Feb. 26, 1902, and at that time reference was made to a case of splenic leukemia which I had treated without success with Roentgen rays. In my book published in June, 1903, a case of leukemia which had been treated with Roentgen rays between November, 1901, and February, 1902, with the disappearance of almost all of the tumors, was reported. The pioneer work and the published reports in this field thus go back more than a year before Senn's report.

I trust that I have no exaggerated impression of the importance of my priority in the treatment of these conditions. I feel, indeed, that the credit for originality in the treatment of my first four cases belongs not so much to me as to Drs. A. J. Ochsner, L. L. McArthur and Jacob Frank, who referred them to me. But I have some pride in the fact that my cases of these conditions were treated, demonstrated and published apparently long before any one else had thought of applying the agent in such cases, and that I thus initiated a method of treatment in these hitherto intractable cases which has certainly been a step in advance. And in the interest of historical accuracy, I wish to call attention to the early work of Williams, Hett, Dunn, Childs and myself, which has apparently been forgotten. There is, I believe, the more reason to do this because all that has been done in the later cases was done in these first cases.

W. A. PUSEY.

An Adjourned Section Meeting.

PHILADELPHIA, June 18, 1904.

To the Editor:—According to the program of the Atlantic City session of the Association several papers were to be read and discussed in the Section on Materia Medica, Pharmacy and Therapeutics on the morning of Friday, June 10. Among these was one by Dr. McDonnell, New Haven, Conn., entitled "The Action of Drugs on the Skin," the discussion of which I was to open. The author had kindly furnished me in advance a copy of his paper in order that I might have the opportunity of arranging my thoughts. It had also been agreed that I was to be allowed a few minutes for some brief remarks on the *x*-ray treatment of Hodgkin's disease. Repairing to the appointed place at the appointed time I was surprised to find an announcement on the blackboard that the section had adjourned *sine die*. A number of other members had also gathered to attend the same meeting.

The excellent program prepared by Dr. Osborne, the chairman of the section, had been disarranged and those who had written papers or who had been asked to take part in discussions were disappointed. I am far from wishing to pass any censorious criticism on the chairman, or, indeed, any individual, but am merely speaking on general principles. I can readily understand that strong pressure was brought to bear on the chairman and those present. All members can not be in attendance on all the sections. On the previous afternoon I, for instance, had been engaged in the work of another section and was ignorant of the adjournment of the Section on Materia Medica, Pharmacy and Therapeutics until the Friday morning.

I would respectfully submit that such a sudden and unannounced curtailment of the program is injurious to the interests of the Association. If individual members wished to leave early for home they should not prevent those who remained and whose names were on the program from reading and discussing their papers. An unexpected adjournment and, as a result, the exclusion of papers which had been prepared at the expense of time and labor, is calculated to work an injury to the success of any section. Moreover, there are members who will feel disinclined to contribute papers when there is no certainty that they shall be read.

For these reasons, which could be amplified did space permit, I am of the opinion that hereafter it should be made a stringent rule that a program be followed as arranged. It should not be made too long for the allotted time and there would then be no excuse for premature adjournment. Dr. Osborne had received, long before the time of meeting, promises of a sufficient number of contributions to occupy the hours, and it is due to his efforts, as well as those who prepare matter to be read or discussed, that all the writers should receive their proper share of attention. This can not occur when the proceedings are brought to an abrupt close.

J. V. SHOEMAKER.

[We asked the secretary of the section to reply to the above letter, which he does as follows.—ED.]

CHICAGO, June 27, 1904.

To the Editor:—Dr. Shoemaker's criticism concerning the premature adjournment of the section is in a sense justified. It was the intention of the officers not to permit the very thing which did happen. A number of members whose names were on the program were present at the session, but failed to appear at the meetings, three because as delegates their presence was required in the House. Three of the authors who appeared on the Friday morning program were anxious to leave earlier and they were substituted for the absentees. This left only one paper for Friday, that referred to by Dr. Shoemaker, and there was doubt as to Dr. McDonnell's attendance. There was consequently nothing to do but to prematurely adjourn. It is regretted fully as much by the chairman, Dr. Osborne, and the secretary as by anyone, and especial apology is due to Dr. Shoemaker, who had been especially invited to discuss the paper of Dr. McDonnell.

C. S. N. HALLBERG,
Secretary of the Section.

Scarlatinal Infectiousness.

CHICAGO, July 18, 1904.

To the Editor:—Will you kindly allow me to make a few comments on the editorial in THE JOURNAL, July 16, entitled "Scarlatinal Infectiousness"?

Lauder's two faulty "systems" of handling scarlet fever and the experience of Killick Millard are used as the basis of the editorial. I say faulty "systems" because they both have to their credit "return cases." The conclusions to be drawn from the editorial are, first, that mild cases of scarlet fever should be protected from severe and complicated cases; second, that in the absence of complications such as inflammation of mucous membrane and abscesses, a child can be turned loose with safety to others though the skin is still peeling; third, that the infectiousness of the desquamating skin is exaggerated. The editorial is interesting as a matter of current news, but decidedly harmful if accepted as a piece of authoritative advice as to the manner of managing scarlet fever.

With the first conclusion I have no quarrel. Experience has taught me that some of the complications of severe cases are a menace to persons having the disease in a mild form. This is notably true of the diphtheritic complication. Conclusions two and three can be spoken of under one head. That the danger from the desquamating skin is exaggerated or that it is safe to remove the restrictions from a scarlet fever patient while there is desquamation, I do not believe. I would have to disregard my own experience to believe this teaching. Furthermore, I do not think the evidence submitted warrants me in accepting such teaching. The comparison of two faulty "systems" to prove that one "system" is the right one to follow because it is no worse than the other hardly merits a serious thought. It is admitted by Lauders that seven "return cases" of scarlet fever resulted in the 1902 or "old system," and a like number in the 1903 or "new system." In practical results you will observe the two systems are equally bad. Because one bad practice is no worse than another is no good reason for advocating the continued existence of either.

The conclusion that the "new system" of hurrying convalescents out to mingle with those susceptible to scarlet fever is better than the "old system" because it kills no more than the "old system," is, to say the least, a poor argument for the new.

The most infectious or contagious period of scarlet fever I believe to be when the rash is at its height, but the time when it is most frequently conveyed to others is during the desquamation period. This is because children, while desquamating and afflicted with other complications, are permitted to mingle with other children. The cast-off skin, I believe, is capable of conveying the disease when carried in clothing, letters and other methods of conveyance. Why should not the skin be charged with infection as well as the mucous membrane? To the eye the manifestation of the disease in the skin is as apparent as elsewhere. What influence makes the skin in these cases harmless and leaves the mucous membrane a source of danger? The skin is in all probability the major channel through which the infection leaves the body. Reason and experience teach that this cast-off skin contains the element which produces scarlet fever. If a shirt worn becomes infected, why should not the skin, which is a still closer covering, become infected? It is doubtful if there is a practical method of disinfecting the inner or under side of the skin before it is detached.

You will observe that there were no "returns" of the disease in the 33 cases of Dr. Lauders, which were "free from peeling and complications" before restrictions were removed. Would it not be better to take these 33 cases as a source of inspiration and say unequivocally that all cases of scarlet fever should be isolated until there is freedom from complications and *until desquamation is completed?*

HEMAN SPALDING, M.D.,
Chief Medical Inspector, Department of Health.

As Others See Us.

ELMHURST, ILL., July 17, 1904.

To the Editor:—Apropos of the article appearing in *Printers' Ink*, the subject of your editorial comment in THE JOURNAL, July 16, I wish to call attention to the fact that it is highly satisfactory to dispense one's own remedies and in this manner antagonize the evil of copied prescriptions, unsanctioned refills and substitution. It is not only more remunerative, but also more satisfactory to both physician and patient. It enables the physician to follow the disease more closely, to note the therapeutic results, whether positive or negative, and it gives a sense of security to know your patient is not receiving a sophisticated or substituted preparation of medicine. With the numerous tablet preparations of tried formulas and of alkaloids, it becomes an easy matter to dispense one's own drugs. A complete stock of drugs can be obtained for about $75. This includes such expensive drugs as protargol, urotropin, creosotol, adrenalin, etc. Any physician whose practice does not exceed $3,500 annually can find time to dispense all of his drugs. If more physicians would dispense their own remedies and do their own thinking we would hear less of therapeutic nihilism.

H. F. L.

Wisconsin Medical Society Proceedings.

MILWAUKEE, WIS., July 11, 1904.

To the Editor:—I beg leave to call your attention to an error in the report of the recent meeting of the Wisconsin State Medical Society in THE JOURNAL, July 2, page 65. The paragraph referred to reads that "A contract was made with the *Milwaukee Medical Journal* for the publication of the proceedings of the society for the ensuing year on the same terms as preceding contract." This contract has been made with the *Wisconsin Medical Journal*.

ARTHUR J. PATEK,
Editor *Wisconsin Medical Journal*.

Cataractous Families.

FOND DU LAC, WIS., July 14, 1904.

To the Editor:—At the suggestion of Dr. John L. Dickey I wish to add another case to his as an instance of the hereditary tendency to cataracts. While I have not sufficient data at hand to thoroughly convince me that heredity should be classed among the causes of cataracts, nevertheless my experience has been such as to make me think of it as a possible cause. I am pleased to learn that some one is investigating the subject and as evidence I report a case wherein the mother, a son, a daughter and a grandson are all afflicted with partial cataracts. The mother is 64, the son and daughter respectively 36 and 32, and the grandson 10.

DR. G. N. BRAZEAU.

The Oldest Students' Medical Club.

BALTIMORE, July 12, 1904.

To the Editor:—I should be glad to learn through THE JOURNAL the name and date of foundation of the oldest students' medical club in this country. The Rush Medical Club, a quiz club among the undergraduates of the School of Medicine of the University of Maryland, was founded in April, 1850, and has had an unbroken existence to the present time.

EUGENE F. CORDELL, M.D.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

EFFECT OF CLIMATE ON CHRONIC CATARRHAL DEAFNESS.

———, MINN., July 11, 1904.

To the Editor:—Would the editor kindly give information regarding climatic effect on chronic catarrhal deafness? Might one expect relief or cure by changing climate from Minnesota to Southern California or to tropical islands? Take, for instance, a case that has progressed for several years and has reached a stage where a watch can be heard only in contact, tubes closed and drums retracted.

E. W. W.

ANSWER.—In the early stages of catarrhal inflammation of the eustachian tube and middle ear, some improvement may be obtained by removal to a warmer and drier atmosphere, but in such a case as our correspondent describes no relief could be expected from the change of climate.

TIME TO TAKE ALKALIES TO MAKE URINE ACID.

J. W. B. of Virginia writes: During an examination of the state medical board the following question was asked: "At what time—i. e., before or after meals—should an alkali be given in order to render the urine acid?" Please answer and give the reaction that takes place.

MATERNITIES FOR THE UNMARRIED.

L. I. C. of Wisconsin: After using your letter in THE JOURNAL July 2, we destroyed the note giving your name and address. We have received some communications for you.

Deaths.

D. Peter Below, M.D., died at his home in Edinburg, Va., July 10, aged 85.

Samuel M. Trinkle, M.D., 1872, died at his home in Philadelphia of apoplexy, July 1, aged 64.

Albert E. Ahlstrom, M.D. University of Minnesota, 1900, died at his home in Cokato, Minn., July 3.

Hamilton Fish, M.D. Denver College of Medicine, 1893, died, July 12, at his home in Denver, from gastroenteritis.

David J. Fitzgerald, M.D. College of Physicians and Surgeons, N. Y., 1884, died at his home in Glens Falls, New York, July 17, aged 46.

Eli J. Zook, M.D. Jefferson Medical College, Philadelphia, 1878, died at his home in Newville, Pa., of heart disease, July 11, aged 60 years.

Gideon D. Hobart, M.D. Bellevue Hospital Medical College, New York City, 1873, of Brooklyn, N. Y., died at Elizabethville, N. Y., July 15, aged 50.

Victor Steinberger, M.D. College of Physicians and Surgeons, New York, 1896, a member of the New York County Medical Society, of New York City, was drowned in Jamaica Bay, July 17, aged 30.

Willard P. Derickson, M.D. Jefferson Medical College, Philadelphia, 1891, died at his home in Wilmington, Del., July 13, after a brief illness of spinal meningitis. He was a member of the staff of the Delaware Hospital.

Richard S. Trowbridge, M.D. Philadelphia College of Medicine and Surgery, 1852, died, July 11, while visiting relatives in Rockledge, Pa., after two days' illness. He practiced in Philadelphia and Milton, Pa., until 15 years ago, when he retired.

State Boards of Registration.

COMING EXAMINATIONS.

Nebraska State Board of Health, August 3 and 4. State House, Lincoln. Secretary, George H. Brash, Beatrice.

District of Columbia April Report.—Dr. W. C. Woodward, secretary of the Board of Medical Supervisors of the District of Columbia, reports that the examination held at Washington, April 14, 1904, was partly oral and partly written. The subjects examined in numbered 17, and the total questions 80. The percentage required to pass was 75; 14 persons were examined, 11 passed, 3 failed.

PASSED.

College.	Year Grad.	Per Cent.
Columbia University, New York City	(1902) 90.78, (1903) 91.21,	(1890) 87.18,
Georgetown University	(1900) 86.06,	(1903) 82.58
Howard University		(1903) 77.66
Johns Hopkins University		(1902) 86.57
National University	(1902) 81.06,	(1903) 78.03
University of Maryland		(1890) 90.33
University of Pennsylvania		(1903) 79.87

FAILED.

Bellevue Hospital Medical College	(1898)	71.90
Howard University	(1902)	74.68
Woman's Medical College, Pennsylvania	(1887)	64.81

Illinois April Report.—Dr. J. A. Egan, secretary of the Illinois State Board of Health, reports the written examination held at East St. Louis, May 4-6, 1904. The subjects examined in numbered 11, and the total questions 110, the percentage required to pass 75. One hundred and ten persons were examined, 100 passed, 1 failed, 4 withdrew from the examination, 1 was expelled for using notes, 4 were withheld pending investigation of the college by the board. The colleges represented were as follows:

PASSED.

College.	Year Grad.	Per Cent.
College of Physicians and Surgeons, St. Louis, (1904). The grade 76 was reached by one, 77 by one, 78 by one, 79 by three, 83 by one, 85 by three, 86 by four, 87 by three, 88 by one, 89 by one.		
Medical Department Washington University, (1904). The grade of 79 was reached by one, 81 by two, 82 by two, 83 by four, 84 by two, 85 by four, 86 by three, 87 by three, 89 by one.		
Marion Sims-Beaumont Medical College, St. Louis, (1904). The grade of 81 was reached by four, 82 by four, 83 by two, 84 by five, 85 by four, 86 by three, 87 by seven.		
Medical College of Indiana, Indianapolis	(1904)	84, 83, 82
Barnes Medical College, St. Louis, (1904). The grade of 76 was reached by one, 79 by one, 80 by one, 81 by two, 82 by one, 83 by six, 84 by four, 85 by one, 86 by one, 88 by one.		
Detroit College of Medicine	(1899)	85
Homeopathic Medical College, Detroit	(1904)	77
Jefferson Medical College, Philadelphia	(1903)	85
Med. Coll. of P. and S., Keokuk, Iowa	(1902)	85
Omaha Medical College, Omaha	(1893)	82
Northwestern University Medical School	(1904)	88

FAILED.

Homeopathic Medical College, St. Louis	(1904)	70

The general average for all representatives of the College of Physicians and Surgeons of St. Louis was 83.6; for representatives of the Medical Department of Washington University, 84.2; for representatives of Marion-Sims-Beaumont Medical College, 84.3.

New Jersey June Report.—Dr. E. L. B. Godfrey, secretary of the State Board of Medical Examiners of New Jersey, reports that at the written examination held at Trenton, June 21 and 22, 1904, 90 questions were asked on 9 subjects, and the percentage required to pass was 75. Of the 52 examined 43 passed and 9 failed.

PASSED.

College.	Year Grad.	Per Cent.
Columbia University	(1902) 88.5,	(1904) 90.7
Baltimore Medical College	(1904) 81.8, 76.2, 81.4, 77.8,	80
University and Bellevue College	(1904) 87.1, 87.7, 87,	89.8
Univ. of Pennsylvania	(1903) 84.4, (1902) 83.5, (1900)	88.8
Medico Chirurgical College, Pennsylvania,	(1904) 86, 86.8,	82.7, 86.5, 81.6, 86.1.
Howard University		(1904) 80.6
University of Maryland		(1903) 75.1
Coll. of P. and S., Baltimore	(1903) 78.3,	(1904) 83.1, 78.3
University of Toronto, Canada	(1902) 80.2 (1881)	82.0
Jefferson Medical College, (1904) 85.7, 86.8, 86.7, 84.8; (1902) 81.6, (1902) 83.8.		
Yale Medical School	(1902)	82.6
Rush Medical College	(1898)	77.8
Hahnemann Med. Coll. and Hosp., Pa., (1904) 81.7, 78.6, 79.5, 86, 76.4.		
Long Island College Hospital	(1904)	80.7
Boston University School of Medicine	(1903)	91.8
Syracuse University College of Medicine	(1901)	89.0

FAILED.

Illinois Medical College	(1902)	68.7
University of Naples, Italy	(1893) 70.5,	(1903) 68.7
Baltimore University School of Medicine	(1904)	63.2, 71.7
Jefferson Medical College	(1904) 71.5,	(1902) 71.8
Hahnemann Med. Coll. and Hosp., Pa	(1904)	63.2
Woman's Medical College, Pa	(1903)	72.8

North Carolina May Report.—Dr. G. W. Pressly, Charlotte, secretary of the North Carolina Board of Medical Examiners, reports that the examination held at Raleigh, May 18 to 24, 1904, 70 questions were asked on 7 branches, and a general average of 80 per cent. required. Ninety-seven applicants were registered for examination. Of these 75 passed, 3 withdrew and 19 failed. The highest mark was made by Dr. Marshall C. Guthrie of Raleigh, N. C., 94 1/7. The second place was won by Dr. Hugh E. Bowman of Davidson, N. C., with a grade of 92½. Dr. Wm. A. Bradsher of Roxboro, N. C., came third, with an average of 92 2/7. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
University of Nashville	(1903) 87.8,	(1898) 83.7
University of the South		(1904) 84.9
University of Maryland	(1904) 80, 86.6, 86.7, 88.8, 91.1, 83.4, 82.4, 84.4, 85.4; (1903) 82.5, 81.4, 83.9, 84.9, 80.6, 80.4, 82.5; (1902) 82.1	92.2, 80.0
University of Pennsylvania		(1902) 84.9
University College of Medicine, Richmond, Va. (1904) 80, 80; (1903) 85, (1902) 80.		
North Carolina Medical College, (1904) 80.6, 80.7, 88.4, 90.8, 85.9, 86.2, 86, 80, 86.4, 80, 87, 80, 84.7, 86.2, 82.2, 92.5; (1903) 80, (1902) 80.		
University of Virginia, (1904) 85, 85, (1903) 81.6, (1902) 87.7,		81,
University of Michigan	(1903) 84.5,	(1897) 83.2
Vanderbilt University		(1898) 80.0
Leonard Med. Coll., Shaw University		(1904) 80, 81.0
Tennessee Medical College		(1901) 80.0
University of North Carolina	(1904) 80, 80, 94.1,	85.2
Grant University		(1897) 80.0
Memphis Hospital Medical College		(1901) 80.0
College of Phys. and Surgs., Atlanta		(1899) 80.0
Medical Coll. of Virginia, Richmond,	(1904) 82.6,	(1902) 80.0
Boston University Homeopathic		(1899) 81.3
Niagara University		(1897) 80.0
Columbian University, Washington		(1901) 88.4
Maryland Medical College		(1904) 80.0
Jefferson Medical College		(1903) 85.0
Laura Memorial Woman's Med. Coll.		(1898) 91.5
Columbia University		(1904) 84.0
Coll. of Phys. and Surgs., Baltimore	(1884) 80.6	(1903) 80.0
Louisville Medical College		(1893) 80.0
Medical College of Ohio		(1885) 80.0

FAILED.

Louisville Medical College	(1898)	62.5
Cleveland Medical College	(1898)	74.7
University of Nashville	(1904)	70.9
Tennessee Medical College	(1901)	35.6
Leonard Medical College	(1904) 73.2,	(1902) 57.6
Howard University, Washington	(1903)	73.2
Univ. Coll. of Med., Richmond	(1903)	64.6
Grant University	(1899) 68.4,	(1903) 68.7
University of Maryland, (1904) 67, 65.8; (1903) 73.2,		(1895) 72.8
University of the South	(1903)	74.6
North Carolina Medical College	(1903)	71.3
Georgetown University	(1897)	68.0
Baltimore Medical College	(1904)	48.4
Atlanta Medical College	(1898)	53.4

South Carolina April Report.—Dr. W. M. Lester, secretary of the South Carolina State Board of Medical Examiners, reports the written examination held at Columbia, April 26-28, 1904. The subjects examined in numbered 17, and the total questions 107. The percentage required to pass was 75. Thirty-three persons were examined, 31 passed, 2 failed.

PASSED.

College	Year Grad.	Per Cent.
Medical College of South Carolina, (1904) 75, 75, 78¼, 84¾, 76¼, 84¼, 78, 78¼, 79, 80¾, 86¼, 75¾, 80¾, 81¾, 78, 80¼,		
University of Pennsylvania	(1903)	86¼
Harvard University	(1900) 86¼,	(1902) 76¼
Vanderbilt University		(1904) 78¼
University of the South	(1904) 85¼,	(1903) 75
Jefferson Medical College		(1903) 79¼
University of Maryland Med. Dept.	(1903) 89¼,	(1904) 78¼
College of Physicians and Surgeons, New York		(1901) 93¾
College of Physicians and Surgeons, Baltimore		(1902) 84¾
College of Physicians and Surgeons, Atlanta		(1904) 80¾
Univ. of Georgia Med. Dept	(1904) 85¼,	83¼, 78¼

FAILED.

Medical College of South Carolina	(1904)	73¾
Chattanooga Medical College	(1901)	59¼

Association News.

Section Transactions.

Certain of the sections are to have printed and bound in cloth all the papers read in their respective Atlantic City sessions, with the illustrations and the discussions. The size varies from 100 to 500 pages. The following sections have ordered transactions: Practice of Medicine, Obstetrics and Diseases of Women, Surgery and Anatomy, Ophthalmology, Diseases of Children, Cutaneous Medicine and Surgery, Laryngology and Otology, Materia Medica, Pharmacy and Therapeutics, Pathology and Physiology. The price, if paid now, is $1 for each book. This is less than cost. After publication, some of these books are sold for $1.25 and some for $1.50. Every year there are many requests for copies after all are sold. We shall print only as many as can be sold. Anyone who has not already ordered the copies he wishes should send the order, with remittance, immediately, as the printing is about to commence.

The Public Service.

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ended July 16, 1904:

Lynch, Charles, asst.-surgeon, detailed for duty at encampment of Ohio National Guard, to be held in Athens County.

Van Poole, G. McD., asst.-surgeon, reports arrival at Vancouver barracks, Washington, for temporary duty in charge of C. B. O. Department of Columbia. Left Fort Stevens, Ore., same date.

Shortlidge, E. D., asst.-surgeon, reports arrival at Presidio of San Francisco, with Third Squadron, Ninth Cavalry, and Field Artillery, for duty during the Department maneuvers.

Mason, Charles F., surgeon, relieved from further duty at Fort Sam Houston, Texas, and assigned to duty in the office of the Surgeon-General of the Army. Reported for duty and assigned in charge of Sanitary and Disbursing Division and as disbursing officer, Medical Department.

Brown, Harry L., asst.-surgeon, appointed asst.-surgeon, U. S. Army, with rank of first lieutenant, to rank from July 8, 1904.

Baily, Howard H., asst.-surgeon, appointed asst.-surgeon, U. S. Army, with rank of first lieutenant, to rank from July 8, 1904.

Humphreys, Harry G., asst.-surgeon, appointed asst.-surgeon, U. S. Army, with rank of first lieutenant, to rank from July 8, 1904.

Freeman, Paul L., asst.-surgeon, appointed asst.-surgeon, U. S. Army, with rank of first lieutenant, to rank from July 8, 1904.

Arthur, Wm. H., surgeon, granted thirty days' leave of absence about August 27, 1904.

Ebert, Rudolph G., surgeon, announced as chief surgeon, Division staff, maneuvers at American Lake, Wash.

Bourke, James, asst.-surgeon, ordered to duty with troops from Fort Sheridan, Ill., about Aug. 1, 1904, at target range between Winthrop Harbor, Ill., and Kenosha, Wis.

Carroll, James, asst.-surgeon, ordered to make not to exceed three visits per month from Washington, D. C., to Baltimore, Md., to obtain material for Army Medical School.

Ekwurzel, George M., asst.-surgeon, relieved from duty at Fort Trumbull, Conn., and ordered to West Point, N. Y., for duty.

Chidester, W. C., asst.-surgeon, reported for duty at Camp Nisqually, Wash., for duty during maneuvers.

Birmingham, H. P., surgeon, detailed to attend encampment of National Guard of Pennsylvania, Gettysburg, July 23 to July 30, 1904.

Phillips, John L., surgeon, left Governor's Island, N. Y., en route to Manassas, Va., on detached duty in connection with maneuvers.

Davis, William T., asst.-surgeon, relieved from duty as surgeon on the transport *Logan*, to take effect on next arrival of that transport at Manila, P. I., and will then reported to Commanding General, Philippines Division, for assignment to duty.

Brown, Henry L., contract surgeon, granted an extension of seven days to his leave of absence from Columbus Barracks, Ohio.

Shellenberger, James E., contract surgeon, arrived at Fort St. Philip, La., for temporary duty.

Hunsey, Samuel W., contract dental surgeon, arrived at Fort Missoula, Mont., for temporary duty.

Brown, Henry D., contract surgeon, left Fort Ward, Wash., for temporary duty at Fort Casey, Wash.

Sorber, Ord. M., contract dental surgeon, granted leave of absence for two weeks from Fort Logan H. Roots, Ark.

Carpenter, Alden, contract dental surgeon, granted leave of absence from Vancouver Barracks, Wash., for one month, with permission to apply for an extension of twenty-five days.

Haywalt, George W., contract surgeon, left Fort St. Philip, La., on leave of absence for one month.

Feeney, John M., contract surgeon, relieved from further duty in the Philippines Division, and directed to proceed to Fort Trumbull, Conn., for station.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending July 16, 1904:

Wilson, H. D., P. A. surgeon, detached from the *Vicksburg* and ordered home to wait orders.

Angeny, G. L., P. A. surgeon, orders of March 16 modified; ordered to duty at the Naval Station, Culebra, W. I., with additional duty with the marine detachment at that place.

Craig, T. C., surgeon retired, relieved from duty as member of a committee for fixing a standard for diphtheria antitoxin, under orders of June 30, 1902.

Steele, J. M., surgeon, detached from the Naval Station, Port Royal, S. C., and ordered home and to wait orders.

Keene, W. P. A. A. surgeon, detached from duty on board the second torpedo flotilla and ordered to the Naval Station, Port Royal, S. C.

Campbell, R. A., A. A. surgeon, ordered to duty on board the second torpedo flotilla.

Bishop, L. W., asst.-surgeon, ordered to the Navy Yard, New York, N. Y.

Backus, J. H., asst.-surgeon, detached from the *Annapolis* and ordered home to wait orders.

Marine-Hospital Service.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service, for the seven days ended July 7, 1904:

Purviance, George, Asst.-Surgeon-General, granted leave of absence for one month from July 1, 1904, on account of sickness.

Kalloch, P. C., surgeon, granted leave of absence for eight days from July 7.

McIntosh, W. P., surgeon, to assume temporary charge of the Portland, Me., quarantine station during the absence on leave of the medical officer in command.

Currie, D. H., asst.-surgeon, to report to chairman of board of examiners, San Francisco, July 25, 1904, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Korn, W. A., asst.-surgeon, to report at Washington, D. C., for special temporary duty.

Holt, J. M., asst.-surgeon, to report to chairman of board of examiners, San Francisco, July 25, 1904, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Trotter, F. E., asst.-surgeon, to report to chairman of board of examiners, San Francisco, July 25, 1904, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

McLaughlin, A. J., asst.-surgeon, to proceed to Atlantic City, N. J., for the purpose of making a physical examination of certain keepers and surfmen of the Life-saving Service.

Foster, A. D., asst.-surgeon, granted leave of absence for seven days from July 8.

Robertson, H. McG., asst.-surgeon, to proceed to Point Pleasant and Tuckerton, N. J., for the purpose of making a physical examination of certain keepers and surfmen of the Life-saving service.

McKeon, F. H., asst.-surgeon, relieved from duty at New York (Stapleton) and directed to proceed to New Orleans, La., and report to the medical officer in command for duty and assignment to quarters.

Spangler, L. C., pharmacist, to report to chairman board of examiners, Tampa Bay Quarantine, July 11, 1904, or as soon thereafter as may be determined by the chairman of the board, for examination to determine his fitness for promotion to the grade of pharmacist of the second class.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., July 6, 1904, for the physical examination of an applicant for appointment as second assistant engineer in the Revenue-cutter Service. Detail for the board: Assistant Surgeon-General G. T. Vaughan, chairman; Asst.-Surgeon A. J. McLaughlin, recorder.

Board convened to meet at Tampa Bay Quarantine, July 11, 1904, or as soon thereafter as may be determined by the chairman of the board, for the examination of Pharmacist L. C. Spangler, to determine his fitness for promotion to the grade of pharmacist of the second class. Detail for the board: Asst.-Surgeon R. E. Eberson, chairman; A. A. Surgeon G. H. Altree, recorder.

Board convened to meet at San Francisco, July 25, 1904, for the examination of assistant surgeons to determine their fitness for promotion to the grade of passed assistant surgeon. Detail for the board: P. A. Surgeon W. G. Stimson, chairman; P. A. Surgeon Rupert Blue, P. A. Surgeon H. S. Cummin, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended July 15, 1904:

SMALLPOX—UNITED STATES.

California: San Francisco, June 26-July 2, 1 case.
Florida: General, July 2-9, 8 cases, 1 death.
Illinois: Chicago, July 2-9, 11 cases; Danville, 5 cases.
Kentucky: Covington, July 2-9, 2 cases.
Massachusetts: Fitchburg, July 2-9, 1 case; North Adams, 1 case.
Michigan: At 79 places, June 25-July 2, present.
Missouri: St. Louis, July 2-9, 3 cases.
Nebraska: Omaha, July 2-9, 2 cases; South Omaha, 2 cases.
New York: Niagara Falls, July 2-9, 1 death; New York, 1 case.
Ohio: Cincinnati, June 25-July 8, 6 cases, 1 death; Zanesville, June 25-July 2, 7 cases.
Pennsylvania: Philadelphia, July 2-9, 1 case; Williamsport, 1 case.
Wisconsin: Milwaukee, June 25-July 8, 9 cases.

SMALLPOX—FOREIGN.

Brazil: Rio de Janeiro, May 22-June 5, 291 cases, 103 deaths.
China: Shanghai, May 14-June 14, 10 deaths.
Cuba: Habana, June 18-25, 1 death, source of infection probably imported to case.
Great Britain: Birmingham, June 18-25, 1 case; Bristol, June 25-July 2, 7 cases; Glasgow, June 24-July 1, 20 cases, 1 death; London, June 18-25, 16 cases, 1 death; Manchester, 2 cases; New Castle-on-Tyne, 12 cases, 1 death; Nottingham, June 11-19, 6 deaths.
India: Calcutta, June 4-11, 1 death; Karachi, June 5-12, 2 cases, 2 deaths.
Java: Batavia, May 14-28, 6 cases.
Mexico: City of Mexico, June 12-26, 12 cases, 5 deaths.
Russia: Moscow, June 11-18, 18 cases, 4 deaths; Odessa, June 18-25, 1 case; Warsaw, June 11-18, 22 deaths.
Straits Settlements: Singapore, May 7-14, 1 death.

Turkey: Beirut, June 4-11, present: Constantinople, June 19-26, 4 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, May 22-June 5, 6 cases, 2 deaths.
Mexico: Coatzacoalcos, June 11-25, 2 cases; Merida, June 19-25, 7 cases, 2 deaths; Tehuantepec, June 19-25, 2 cases, 1 death; Vera Cruz, June 25-July 2, 5 cases, 1 death.

CHOLERA.

India: Bombay, June 7-14, 63 deaths: Calcutta, June 4-11, 36 deaths: Madras, June 4-10, 1 death.
Turkey in Asia: June 6, 361 cases, 210 deaths.

PLAGUE.

Africa: Cape Colony, May 21-28, 1 case; Natal, June 2, present.
Brazil: Bahia, July 9, 5 cases, 2 deaths; Rio de Janeiro, May 22-June 5, 3 cases, 1 death.
Chile: Arica, July 10, 1 death; Antofagasta, May 1-31, 52 deaths.
Egypt: May 28-June 4, 14 cases, 8 deaths, including 4 cases, 1 death, in Alexandria, and 1 case in Port Said.
India: Bombay, June 7-14, 63 deaths; Calcutta, June 4-11, 36 deaths; Karachi, June 5-12, 21 cases, 22 deaths.
Mauritius: April 8-May 5, 3 cases, 3 deaths.
Peru: Trujillo, July 10, 1 death.

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in everyday practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Typhoid Fever.

GENERAL MANAGEMENT.

Beates, in *Therapeutic Review*, states that it is essential that favorable environment be secured, a quiet, well-ventilated room, a sanguine, bright and tactful nurse; tactful conversation only should be used, visitors should be few and no one be permitted to enter the room who indulges in narratives of bad cases, etc. "A comfortable bed is an inestimable necessity." Germicidal and antiseptic principles should be constantly observed and applied in the care of all the discharges from the patient, the bed linen, all dishes and eating utensils. The hands of the attendant should be thoroughly washed and disinfected after each time the patient is handled.

CARE OF EXCRETA.

The *Therapeutic Review* quotes the following practical suggestions as given out by the Wilmington Water Department:

Keep on hand a five-gallon vessel filled with any one of the following solutions:

1. Chlorid of lime, best quality, to contain 25 per cent. of available chlorin, free from strong odor on opening the box, six ounces to each gallon of water.

2. Formalin (40 per cent.), five ounces to the gallon of water.

3. Carbolic acid, four ounces to the gallon of water.

The choice of these solutions should be determined by the ability to obtain the pure article. Keep vessel tightly corked.

Have the receptacles for the stools (bed pan or night chamber) provided with a closely fitting lid. It is better to have two receptacles of the same kind so that one may be kept clean for the patient's use. When ready for use put two glassfuls of the disinfectant into the receptacle or one-half glassful if the urinal is used so that the discharge comes immediately in contact with the disinfectant when it is voided. No harm is done if the disinfectant comes in contact with the bedclothes. Remove the vessel to a secluded place in the house, add enough more disinfectant to completely cover the discharge, stir contents with stick (burn the stick), replace the lid and allow to stand for at least two hours. The longer the discharges stand in contact with the disinfectant the more harmless they become and less obnoxious to handle. If there is no water closet the discharges should be buried in the soil at least 100 feet from any well or stream. All the linen should be soaked in the formalin or carbolic acid solution (not the chlorid of lime solution) until they are washed. Use the disinfectant freely on all occasions.

CARE OF THE MOUTH.

The importance of the proper hygiene of the mouth can not be too much emphasized. Discharges from the nose and thickened secretions from the mouth should be removed. The teeth, gums and tongue should be cleansed with a very soft tooth brush or with a piece of gauze wet in saturated solution of boric acid, or weak peroxid of hydrogen, or a solution made by adding oil of cassia, six drops to six ounces of water. The mouth should be cleansed with one of the above or similar solutions before and after each nourishment.

DIET.

Beates further states in regard to the feeding of typhoid patients: "Food supplying potential energy, and of a highly nutritious type, must be intelligently administered as each particular case shows its ability to assimilate. Nutriment giving the minimum of residuum is the great object to be attained." He believes that pyrexia is a symptom of insufficient nourishment and the giving of a proper supply of food will influence the temperature.

Manges, in the *New York Med. Jour.*, states that milk is the most important part of the diet, provided that milk agrees with the patient. If the milk does not agree with the patient and a full, uncomfortable abdomen with increasing discharge of offensive flatus results, then it is wise to dilute the milk with plain water, albumin water, rice water, or barley water. If this fails to relieve the distension then it is better to suspend the use of milk entirely for a greater or less period of time and substitute one of the cereal waters mentioned above and meat juice. He allows the patient to chew a piece of beef steak, the nurse standing by and not giving another piece until that one is returned. This procedure is very grateful to the patient, and furthermore keeps the mouth clean and stimulates the flow of saliva. He believes that successful feeding of a typhoid is largely dependent on the cleanly condition of the mouth.

McCrae, in the *Practitioner*, describes the dietetic treatment of typhoid fever as carried out in Professor Osler's clinic in the Johns Hopkins Hospital as follows: The diet is of milk and albumin water; of the former the patient receives four ounces, diluted with two ounces of lime water, every four hours; of the albumin water he receives the white of one or two eggs in four ounces of water flavored with lemon or orange juice, every alternate four hours. In patients with whom milk does not agree, some modification, such as buttermilk, or kumyss flavored with vanilla, or some similar preparation may be employed. The patients are allowed tea, coffee, cocoa or ice cream at any stage of the fever. Bouillon is sometimes given. Beef tea and peptones are never given.

USE OF WATER.

McCrae further urges the importance of giving sufficient amount of water. Their rule is that every patient shall receive at least three quarts of fluid in twenty-four hours; some take as much as twice this quantity. Boot, in *St. Paul Med. Jour.*, advises the free use of water, both by mouth and the use of colonic flushings. He believes that the colonic flush not only stimulates the small intestine to empty its contents into the large bowel, there to be carried out by the irrigation, but more or less of the water is absorbed and aids in eliminating the toxins through the kidneys. In regard to the method he says: "I recommend that the irrigation be used by means of a large rubber catheter or small rectal tube. About half a gallon of plain warm water will suffice for an adult. The higher this can be thrown into the colon the better. In my later cases I have used this almost daily."

Marshall reports in the *Lancet* that he used saline infusion when the heart was weak and failed to respond to the usual stimulation, in profound toxemia and hemorrhage. From twenty to thirty ounces were given four different times as indicated. Very marked improvement was noted after each injection.

HYDROTHERAPY.

This method of treating the pyrexia is universally in vogue.

Few, indeed, are the physicians who rely on the administration of some one of the various coal-tar products to reduce the fever. Cold sponge baths, cold packs and the tub baths may be used at the discretion of the physician. Many patients do not react well to the tub. Manges says in the article quoted from above: "The use of the tub or other hydriatic measures will always stand high in the estimation of those who have used them properly. The original barbaric procedures are no longer needed, since the bath of 90 F. reduced to 80 or 78 F. and accompanied with proper friction will be found ample. The drop in the temperature is in my opinion the least important result of the tub. Too little stress is laid on the increased elimination, the effects on the nervous system, the resultant leucocytosis."

INTESTINAL ANTISEPTICS.

Manges says the best result that can be hoped from the so-called intestinal antiseptics is a moderate antifermentative action. Salol and the bismuth salts are recommended.

Kesteven, in the *Therapeutic Gazette*, recommends eucalyptus, preferably the oil of eucalyptus, eucalyptol having been deprived of its special virtue. The author claims that it gives greater relief to all general symptoms, such as tympanites, tormina, leathery-brown tongue, sordes, dry skin, etc., reduces the hardness and rapidity of the pulse without lowering the strength. The drug is given in doses of ten to thirty minims in capsule or since it is not particularly unpalatable its taste may be easily masked by various adjuvants, such as glycerin, spirits of chloroform, oil of peppermint, or oil of wintergreen, etc.

OTHER DRUGS IN TYPHOID.

Musser believes that the chief indication for alcohol is marked toxemia in elderly patients. In the young he prefers to give the drug in small amounts when there are septicemic changes, using large doses only for short periods.

H. A. Hare concludes from experimental research that alcohol seems to have the power of combating infectious diseases by increasing the bacterial destroying power of the blood.

Manges says of hydrochlorid acid, that if there is any drug that ought to be used in every case of typhoid fever that drug is hydrochloric acid. Its usefulness is based on the fact that the secretion of hydrochloric acid in the stomach is very much reduced in all febrile conditions, its routine administration aids in obtaining a more complete digestion of the food in the stomach, thereby promoting greater absorption of peptones in the stomach and less chance of putrefactive change in the intestine. Ten drops of the dilute acid in a glass of water ought to be given every three or four hours throughout the course of the disease.

Bass recommends the use of castor oil in the treatment of typhoid fever. Favorable results were obtained in all his cases. At no time was constipation permitted to exist; poisons were eliminated almost as fast as they were generated. He gives the drug every twelve hours throughout the course of the disease, in doses suitable to produce one or two movements.

HEMORRHAGE.

Moore, in the *Practitioner*, recommends absolute rest for the patient and for the bowels, obtained by withholding food for several hours and by the free exhibition of opium, preferably in the hypodermic injections of morphia or the following:

℞.	Acidi tannici	gr. x	65
	Tincturæ opii	m. x	65
	Spiritus terebinthinæ	m. xv	1
	Mucilaginis acaciæ	℥ii	8
	Tincturæ chloroformi comp.	m. xx	1 30
	Aquæ menthæ piperitæ q. s. ad	℥i	30

M. Sig.: Tablespoonful at one dose; or the following to prevent meteorism and aid in checking hemorrhage:

℞.	Spiritus terebinthinæ		
	Spiritus etheris nitrosi		
	Spiritus chloroformi, ää	℥ii	8
	Emulsii amygd. q. s. ad	℥vi	180

M. Ft. mistura. Sig.: Shake bottle and give tablespoonful at a dose every three to four hours as required.

An ice bag is laid over right side of abdomen; when hemorrhage is so profuse as to threaten life ice water enemata or a hypodermic injection of salt solution may be employed; in such cases twenty grains of chlorid of calcium every few hours are of value.

Hare recommends the following formula for the diarrhea of typhoid.

℞.	Acidi sulphurici aromati	℥i	4
	Extracti hematoxyli fluidi		
	Spiritus chloroformi, ää	℥ss	15
	Syrupi zingiberis q. s. ad	℥iii	90

M. Sig.: Two teaspoonfuls every two to four hours.

Eczema.

Merck's *Archives* recommends the following formula:

℞.	Ichthyol	℥i	4
	Acidi salicylici	gr. v	30
	Acidi borici		
	Paraffin, ää	gr. xx	1 30
	Petrolati	℥i	30

M. Sig.: Apply at bedtime.

The following has also been recommended:

℞.	Ichthyol	gr. xv	1
	Zinci oxidi	gr. xlv	3
	Acidi borici	gr. xxx	2
	Petrolati	℥i	30

M. Sig.: Apply twice daily.

Vomiting of Pregnancy.

Crowley recommends the following:

℞.	Bismuthi salicylatis		
	Cerii oxalatis, ää	℥i	4
	Mentholis	gr. x	65
	Cocain muriatis	gr. ½ iii	20
	Spts. vini rect.	℥i	4
	Elix. aurantii, q. s. ad	℥vi	180

M. Sig.: Teaspoonful every three to four hours.

The following has also been recommended:

℞.	Sodii bromidi	℥iv	15
	Elix. lactopepsin	℥ii	60

M. Sig.: Teaspoonful every three to four hours.

Medicolegal.

Evidence of General Reputation as to Health Excluded.—The Court of Civil Appeals of Texas holds, in Home Circle Society No. 1 vs. Shelton and another, an action brought by the latter parties to recover on a benefit certificate, that the condition of the health of the insured at the time she made application to become a member of the circle could not be proved by general reputation, as such evidence was hearsay.

Insanity Not Provable by Reputation.—The Supreme Court of Montana says that, in the case of State vs. Lagoni, where a witness testified that he had known another who was about 60 years of age, for 18 or 20 years, he was asked to state what was such other's reputation in the neighborhood in which he lived, among his neighbors, as to his being sane or insane. The evidence solicited was clearly incompetent. It is not permissible to prove insanity by reputation.

Sufficient Evidence that Fall Caused Appendicitis.—The Supreme Judicial Court of Massachusetts holds, in the personal injury case of Sullivan vs. the Boston Elevated Railway Company, where the former was thrown from the seat of a large brewery wagon to the ground, a height of 8 or 9 feet, by a collision with a street car, that the testimony of a physician warranted the jury in finding that the inflammation of the appendix was caused by the collision. It says that the physician who, in a practice of six years, principally surgical, had operated between 100 and 200 times for appendicitis, was properly found qualified to testify as an expert, and testified "that such a fall as Sullivan testified to receiving could be an adequate cause of the appendicitis." That was sufficient, taken in connection with the plaintiff's testimony that his health was good before the accident.

Expert Evidence as to Permanency of Injury.—The Supreme

Court of Wisconsin says, in the case of Hallum vs. Village of Omro, brought to recover for personal injuries alleged to have been sustained on a defective sidewalk, that a physician seemed to have given his opinion as to the plaintiff's liability to control, normally, the action of her left limb from having observed her as she walked, and given opinion evidence as to the probable cause of such condition. There was no error in that. Again, the physician, having knowledge as to what the plaintiff testified respecting her condition before and after the accident, was asked, on the hypothesis that her testimony was true, whether the injuries she was suffering from "were liable to be permanent." It was strenuously insisted that such testimony was conjectural and was erroneously received. The court says that it is true that there can be no recovery, legitimately, for permanent impairment in a case like this in the absence of competent evidence warranting a conclusion, with reasonable certainty, that such impairment will exist as a result of the accident; but it is not necessary that opinion evidence should be confined to that high degree of certainty. Experts may properly testify to the mere probabilities of the case. It would ordinarily be very difficult to secure any more definite opinion evidence than that from a conscientious expert. An examination of the cases cited will show that "probable," "likely" and "liable" have been treated as synonymous, each dealing with reasonable probability, not with possibility, and that what may probably or is likely or liable to be the future result of a personal injury is competent evidence to prove what is reasonably certain in the matter. That is according to lexical authority as to the meaning of the words. The better way, however, to invoke professional opinion evidence in such a matter, the court would say, is to ask for the expert's opinion, not using either term. But an interrogative as to what the probabilities are, or what is likely or liable to be the result as regards permanency of the injury, can not be condemned as speculative or conjectural. This does not militate at all against the doctrine that the ultimate vital fact to be determined is what is reasonably certain to be the result. That is for the jury to determine from all the evidence bearing on the question, including the opinion evidence as to what is probable, likely or liable to be the case.

Admissibility of Expert Evidence as to Neurasthenia.—The Supreme Court of Missouri, Division No. 2, says, in the personal injury case of Wood vs. Metropolitan Street Railway Company, that it must be conceded that the disease of neurasthenia, or nervous prostration or nervous exhaustion, though one of the most serious character and causing great suffering, is little understood by the average person, either in its symptoms, or the causes which produce it. Being an affection of the nervous system, it may be said to lie peculiarly within the province of a medical expert to determine its existence and to ascertain its cause. Certainly it can not be said that the average juror is as capable of determining from certain symptoms the existence of such a disease and its cause as a medical man who has made it a study. While the experience and learning of the physician might readily detect it, the ordinary man would know nothing of it. In a word, whether a man or woman is afflicted with neurasthenia, and what produced it, is peculiarly a matter of scientific or technical knowledge. Hence in this case no objection was taken, and properly not, to the testimony of a physician as to the nature of this disease, and its general characteristics, or the usual causes producing it. Manifestly, no one but a physician, and, the court says it might add, one who has made a study of nervous troubles, is competent to speak intelligently on the subject. Futhermore, the court says that in Missouri the rule is well established that a medical expert may give his opinion as to the cause of a diseased condition, or that it will be permanent, or the cause of death, on a hypothetical statement of the facts. And as to the proposition that his opinion may go to the very issue on trial, it was ruled in State vs. Wright, 134 Mo. 404, that a medical expert may give his opinion as to the sanity or insanity of the defendant, having for a basis the hypothetical case, together with what he had learned from an examination of the defendant, though this is the sole issue to be decided by the jury. Indeed, nothing is better settled in the criminal practice than that a medical witness may describe the wounds which he observed on a dead person, and give his opinion whether one or more of them produced the death, or were necessarily mortal. The cases are too numerous to cite. And it is the universal rule in this country that a medical expert may give his opinion as to the cause of death, notwithstanding that is one of the issues and sometimes the only issue in the case. Wherefore, the court holds that there was no error in this case in permitting a question to be asked, or answered by the expert medical witness, as to what in his opinion caused the nervous prostration with which he found the plaintiff to be suffering. He was competent, after his examination of her, to say that was her disease. Then, made acquainted, as he was, by the facts stated in the hypothetical case, he was competent to express an opinion as to the cause of said disease. As to the expert being a hired witness, the fact that he was paid his fee as an expert for the examination of the plaintiff was fully disclosed by the witness himself on a question propounded by the plaintiff's attorney, and the jury had that fact before them in weighing his credibility. It presented no ground of incompetency of the witness.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

July 9.

1 *Treatment of Gallstones Found as a Coincidence in Abdominal or Pelvic Operation. John G. Clark.
2 Edema. (Second Lecture.) S. J. Meltzer.
3 *Two Cases of Renal Tuberculosis Illustrating the Results of Nephrectomy. I. N. Danforth.
4 Case of Chronic Pancreatitis; Diagnosis; Operation; Recovery. J. W. Chambers and Julius Friedenwald.
5 Concerning the Invasion Period of the Malignant (Estivo-autumnal) Tertian Malarial Parasite. Thomas W. Jackson.
6 *Gangrene of the Finger Caused by Carbolic Acid. G. E. Shoemaker.
7 The Training of the Surgeon. W. S. Halstead.

1. **Treatment of Gallstones Coincidentally with Abdominal or Pelvic Operations.**—Clark reviews the work done in this particular field of surgical activity of late by various investigators and clinicians, and urges abdominal surgeons to make a most careful record of all gastrointestinal or hepatic symptoms and other vague epigastric pains, and associate these with an examination of the gall bladder. In operating for cholelithiasis he always uses the operation recommended by Kelly. Counter-indications for the examination of the gall bladder are as follows: When the operation in the pelvis has been attended with the evacuation of pus, which if generally distributed in the peritoneal cavity might give rise to a peritonitis, this exploration should be admitted. When the patient is in a critical condition at the termination of the operation, it should not be made. In cases in which operation is done for a simple condition, when the clinical symptoms are clear cut and point definitely to but the one condition, it should again be omitted. In old pelvic inflammatory cases, in which the septic area in the pelvis is completely walled off by adhesions, the examination of the gall bladder may be made immediately after the abdomen is opened, before the pelvic adhesions are broken up. In this way the danger of distributing the septic material may be avoided. Clark summarizes his paper as follows:

1. The usual statement that 95 per cent. of gallstones produce no symptoms is fallacious because it is drawn from autopsy and dissecting-room statistics.
2. Recent researches point very strongly to the bacteriologic origin of gallstones;
3. Bile is not bactericidal, for in the majority of cases of cholelithiasis micro-organisms of a more or less pathogenic nature are discovered.
4. Under these circumstances, many more or less vague symptoms attributed to gastrointestinal or general constitutional disturbances may arise from toxins elaborated around these foreign bodies in the gall bladder.
5. All clinicians admit that there is a wide hiatus in the clinical symptoms between the early formation of gallstones and the so-called classic attacks of biliary colic with jaundice.

6. Abdominal surgeons should make a most careful record of all gastrointestinal or hepatic symptoms and other vague epigastric pains and associate these with an examination of the gall bladder, with a view to establishing a further link in the symptomatology of cholelithiasis.

7. As cholelithotomy in a large series of cases has been attended with less than 2 per cent. mortality, the coincident removal of gallstones with some other abdominal operation is not a hasardous undertaking.

8. In my series of cases, more than 50 per cent. have shown symptoms which could be unquestionably or with great assurance attributed to the presence of gallstones.

9. This coincident operation should be dictated by the most careful surgical judgment, for if the patient is in a critical condition from a prolonged operation, or the primary operation has been a septic one, this extra operation may be attended by serious results.

3. Renal Tuberculosis.—Two cases of renal tuberculosis are reported by Danforth illustrating the results of nephrectomy. He says it is impossible to differentiate positively a simple renal hypertrophy from a tumor, especially when the hypertrophy is more or less asymmetric, or when the tumor differs but little in shape or density from the kidney. It is impossible to determine the nature of the growth prior to operation. It is a comparatively rare thing to discover tubercle bacilli in the urine; that is, with the methods used by the general practitioner. The fact that tuberculous disease has not appeared in other parts of the body does not prove its absence in the kidney. Deposits of tubercle, too small or too obscure for detection, may be present, so that it is hardly safe to assume that any case of renal tuberculosis is positively primary without a most searching examination of all accessible portions of the body. The great majority of kidney operations must be regarded as exploratory and diagnostic. Danforth prefers to operate in his own cases of renal disease. He believes that a physician can not divest himself of his responsibility for, or his interest in a case, by turning it over to a surgeon; neither can he expect the surgeon to act as an assistant, for the purpose of carrying out the physician's wishes. The post-operative treatment, both medical and surgical, in a case of surgical kidney, is frequently of as much importance as the operation itself. For these reasons he prefers to retain complete control of his cases of surgical kidney and also to do his own operating. He recommends a similar course to other physicians who are giving special attention to renal diseases. The operation presents no difficulties which ought to appear formidable to any physician of experience; the incisions are simple, the landmarks plain, and the organ is easily reached and delivered.

6. Carbolic-Acid Gangrene.—Shoemaker reports the case of a young woman who had been given a carbolic-acid lotion by a druggist for the purpose of putting a wet dressing on an injured finger. The result was that three-fourths of the length of her middle finger was dead-black in color, somewhat shrunken, and a line of demarcation had formed close to the hand. Another case is that of a little girl of 7, whose finger had been plunged into carbolic-acid solution of unknown strength and then tied up. Gangrene resulted.

New York Medical Journal.

July 9.

8 *Contribution to the Pathology of the Elastic Tissue of the Aorta. Fritz Schwyzer.
9 *Home Treatment of Pulmonary Tuberculosis. E. Fletcher Ingals.
10 Effects of the Dry Carbonic Acid Gas Bath on the Circulation and on the Diseased Heart. A. Rose.
11 Two Cases of Uncinariasis. J. Norman Henry.
12 Unhealthfulness of Noise. J. A. Guthrie.

8. Pathology of Elastic Tissue of the Aorta.—Schwyzer believes that the elasticity and ductility of the aorta do not depend on the elastic qualities of the elastic fibers alone, but rather on the peculiar construction of the elastic trestlework and on the collagenous fibers; that the elastic tissue is to be considered as an inhibitory factor against over-expansion; that by studying the lesions of the elastic tissue it is comparatively easy to distinguish between syphilis and arteriosclerosis, and that by the same means the senile form of aortic changes can be distinguished from those of true arteriosclerosis.

9. Home Treatment of Pulmonary Tuberculosis.—Ingals emphasizes the importance of forced feeding in the treatment of pulmonary tuberculosis, while tonics, digestive agents and anodynes that do not interfere with the functions of the body are also of much importance. The so-called antiseptic treatment often is beneficial; the open-air treatment about equally so. To do the best for our patients all these should be combined, and when practicable the sufferer should be placed in a good climate. He cites two cases illustrating the effectiveness of home treatment, with as liberal feeding as possible, aided by tonics and digestive agents, anodynes to prevent excessive cough, and antiseptics in large doses. In neither of these cases was it possible to secure open-air living. He uses extract of nux vomica, gr. ½, to improve the digestion; extract of hyocyamus, gr. ¾, to relieve cough; extract of cascara sagrada, gr. 1/3, for the constipation, and sodium sulphichthyolate, grs. 7½, for its antiseptic properties, to be taken four times a day before eating and at bedtime, and to be followed by a glass of milk. It may be necessary to increase the dosage of these drugs, and if the cough is very severe, to add 1/6 of a grain of codein. The first patient to all appearances became well, although there was still evidence of the old trouble in her lungs. She appeared much better while taking the antiseptic treatment, although the improvement in her condition was mainly due to the effects of the medicine in stimulating her appetite, promoting digestion and preventing excessive cough. The second case showed the beneficial effects of the open-air treatment, the patient living with the windows open constantly for the last five months. The medicinal treatment was similar to that prescribed for the first case. Thiocol, 10 grs. three times a day after eating, followed by a glass of milk, was substituted for the sodium sulphichthyolate, and 15 drops of guaiacol were rubbed on the chest twice daily to relieve pain and fever.

Medical News, New York.

July 9.

13 Theory of Mutation in Its Relation to Medicine. Jonathan Wright.
14 Race Suicide from the Gynecological Standpoint. Egbert H. Grandin.
15 Sterility Due to Abnormal Conditions of the Uterus. H. N. Vineberg.
16 Sterility from Vaginal Causes. J. N. West.
17 *Yohimbin; Its Use in the Treatment of Eye, Ear, Nose and Throat Diseases. J. H. Claiborne and Edward B. Coburn.
18 Prognosis and Treatment of Urethral Stricture. Edward L. Keyes, Jr.
19 The Submerged Tonsil. Thomas J. Harris.
20 Pseudobulbar (Glosso-pharyngo-Labial) Paralysis. L. K. Hirshberg.
21 Rational vs. the "Regular" Treatment for Typhoid Fever; Hanna's Case and Some Others. Charles E. Page.

17. Yohimbin.—This is a new alkaloid derived from the yohimbehe tree, a native of West Africa. The drug crystallizes in the form of white needles having a silky appearance. It is readily soluble in ethyl, methyl and amyl alcohol and in ether and chloroform, but is only soluble in water to the amount of about 2 per cent. The hydrochlorate is the salt usually employed and is fairly stable except in solution, when it deteriorates rapidly. It may be preserved much longer by the addition of a small amount of chloroform. It is non-toxic when injected in doses of 25 c.c. of a 1 per cent. solution of the hydrochlorate. A local anesthesia is produced, which lasts for one and three-quarter hours. Yohimbin has been used to some extent in operations on the eye requiring local anesthesia, and the author summarizes its action on the eye and its surroundings as follows:

1. A 2 per cent. solution of yohimbin, either alone or in equal mixture with adrenalin chlorid solution, dropped into the conjunctiva cul-de-sac from five to six times in ten or fifteen minutes, will produce both corneal and conjunctival anesthesia. Marked anesthesia of the cornea lasts from thirty to forty-five minutes after the last instillation; the conjunctival anesthesia is at no time so profound as the corneal, and disappears several minutes before the latter.

2. There is a slight stinging sensation immediately following the instillation, which becomes less and less with each instillation, finally disappearing altogether.

3. The eye becomes immediately suffused and continues red for more than an hour after the last instillation.

4. There is no widening of the palpebral fissure.

5. There is a moderate but marked dilatation of the pupil which comes on several minutes earlier after the last instillation with adrenalin and yohimbin in combination than with yohimbin alone, but lasts in either case from fifteen to twenty minutes.

6. The slight blurring of the vision for far and near appears to be due to spherical aberration rather than to paresis of accommodation.

7. Yohimbin alone or in combination with adrenalin is an exceedingly mild mydriatic.

8. Adrenalin when mixed in equal parts with yohimbin in 2 per cent. solution, loses its constricting power on the blood vessels of the palpebral and bulbar conjunctiva.

9. This last-mentioned fact suggests the idea that yohimbin may be an antidote to adrenalin chlorid.
10. In view of the congestion caused by yohimbin, it can not be considered the ideal anesthetic for operations involving the conjunctiva or muscles.
11. As an anesthetic in cataract extractions and in iridectomy, it would probably be effective.
12. On account of the congestion produced by it, yohimbin would be inferior to cocain as an anesthetic in all operations on the eye.

Yohimbin has also been found useful in ear and nose work for the removal of the nasal turbinals and granulations, and of polypi from the ear, because of its freedom from toxicity and because it does not cause the tissues to contract (as cocain does) and so render their removal difficult. A 2 per cent. solution of yohimbin benumbs the mucous membranes in two minutes; in five minutes they are markedly anesthetic, and in ten minutes the maximum degree of anesthesia is obtained. Anesthesia lasts from one-half to three-quarters of an hour, and sensation is restored completely in one hour and a half. It does not act on cutaneous surfaces except by injection. Yohimbin induces hyperemia, which may be dangerous in persons of hemorrhagic tendencies. Some of the advantages of yohimbin are non-toxicity; long duration of anesthesia; it does not markedly contract the tissues; the taste is only slightly bitter; it does not cause unpleasant contraction of throat and mouth. Some of its disadvantages are that it does not keep well; does not contract the tissues; hyperemia and hemorrhage after operation, and salivation.

Medical Record, New York.

July 9.

22 *Illuminating Gas Poisoning; a Clinical Study of 90 Cases. W. Gilman Thompson.
23 Diagnosis of Typhoid Perforation and Its Treatment by Operation. Charles A. Eisberg.
24 Method of Securing Fixation and Hardening of the Central Nervous System Before the Autopsy. B. Onuf.
25 Occipitoposterior Positions. S. Marx.
26 Brief Notes on the Management of Occipitoposterior Positions of the Vertex. John O. Polak.

22.—See abstract in THE JOURNAL, xlii, p. 1378.

Boston Medical and Surgical Journal.

July 7.

27 President's Address, American Gynecological Society. Edward Reynolds.
28 *Aciduria (Acetonuria) Associated with Death After Anesthesia. E. G. Brackett, J. S. Stone and H. C. Low.

28. Aciduria Associated with Death After Anesthesia.—The authors call attention to the fact that aciduria may be associated with death after anesthesia and report a series of cases presenting certain features in common: Vomiting associated with collapse; a very weak and rapid pulse; an absence of fever until just before death; cyanosis, in the fatal cases, causing extreme dyspnea; apathy and stupor, alternating with periods of restlessness at first, but in the fatal cases gradually deepening into coma and death; and the presence of acetone in the breath and urine. In seven cases these symptoms followed operation. Three of the patients died. In the four mild cases which recovered, no symptoms appeared within the first twelve hours after operation. In none of these cases was the recovery from the operation normal. However, anesthetization alone does not bring on the condition, nor can operative interference and operative shock be regarded as the underlying cause. The sudden onset, the nature and the severity of the symptoms suggest ptomaine poisoning, but in no case was there any diarrhea, which is scarcely ever absent in ptomaine poisoning if the patient lives long enough. Homesickness, fright, confinement in the hospital, and change of food were considered as possible factors in the etiology of this condition. All the cases gave distinct clinical evidence of being a form of acute intoxication due in some way to a disturbance of metabolism which has, among its peculiar manifestations, the presence of acetone and its allied compounds in the excreta. It can be stated positively that the symptoms are not the result of anesthesia, operation or shock, unless in the presence of certain underlying causes still undetermined. It is suggestive to say that most of the cases occurred in children with a high-strung, nervous temperament, in whom the confinement, changed habits, changes in diet, homesickness, dread of operation, the anesthesia, and the operation itself, may lead to changes in the metabolism which have not hitherto been taken into account. These changes may lead to serious or fatal consequences unless all the organs, including the muscular system, are not only sound, but performing their functions normally. It is possible that the toxic agent may be produced by the same conditions which cause the appearance of acetone in the urine, and that the appearance of acetone in the urine, in quantities sufficient to give the ordinary clinical reaction, is to be regarded as an indication of serious and possibly dangerous disturbance of metabolism. Bicarbonate of soda or some other alkali is the only remedy which promises to be of any decided benefit, and it should be given in large amounts by mouth and in enemata. In some instances infusion of large quantities of salt solution under the skin or into the veins seems to be of decided though usually only temporary benefit. The authors summarize the result of their studies as follows:

> First, greater attention should be paid to temperament, and to the conditions which influence it, realizing the anxiety and fright, with the accompanying physical disturbances, caused by entering a hospital, remembering that these are particularly noticeable in children of high-strung and apprehensive temperament. Second, the absence of any gross evidence of a pathologic condition, as shown by heart murmurs, evident changes in the lungs and kidneys, or abdominal tumor, may not constitute immunity from the danger of acetonemia, and possible death after operation. Third, decided caution should be paid to those cases in which there may be reason to suspect a fatty condition of the liver. Fourth, it is more than probable that unusual care should be exercised in those cases showing extensive degenerative change, and, particularly, degenerative muscular change, such as is seen in extensive infantile paralysis.

Cincinnati Lancet-Clinic.

July 2.

29 *Diagnosis of Supra- and Sub-Diaphragmatic Suppuration. Joseph Rilus Eastman.
30 Madam Cow. C. L. Patterson.

July 9.

31 *The Recognition and Management of Infantile Eczema. M. L. Heidingsfeld.
32 *Management of Congenital Syphilis in Children. A. Ravogli.

29. Diagnosis of Supra- and Sub-Diaphragmatic Suppuration.—Eastman enumerates and emphasizes certain diagnostic facts which are of value in determining the presence of abscess immediately above or below the diaphragm, and the location, source and general characteristics of abscess in these areas. He makes special mention of the value of blood examination in determining the existence of deep-seated suppurations. Although the diagnostic value of the test is limited, in abscesses it is of some value in diagnosticating a deep-seated purulent condition, if the other causes which may give rise to the reaction, such as septicemia, pneumonia, pulmonary tuberculosis, malignant disease, severe anemia, leukemia and pseudoleukemia, can be ruled out. It is wrong to place too much reliance on blood examination, although as mentioned, it may, in some cases, be of considerable value.

31. Infantile Eczema.—Heidingsfeld reviews the diagnosis and treatment of this condition, but offers nothing new.

32. Congenital Syphilis in Children.—Ravogli considers the management of congenital syphilis in children, laying special stress on the prophylactic treatment. When a babe is born with symptoms of congenital syphilis, from parents apparently well, they must both be subjected to specific treatment. If the parents are known to be syphilitic, we should compel the mother to take anti-syphilitic treatment four months during her pregnancy, in two or three different periods. The influence of the treatment of the mother on the fetus is absolutely wonderful. It is the only true prophylactic measure in these cases.

St. Paul Medical Journal.

July.

33 *Chronic Pancreatitis. Edward Boeckmann.
34 Pleuritic Effusions. Howard Lankester.
35 Diabetes Mellitus. E. W. Benham.
36 Influenza. L. G. Smith.
37 Organization of the Medical Profession. R. A. Hensel.
38 Medical Associations. O. L. Bertleson.

33. Chronic Pancreatitis.—According to Boeckman it is reasonable to believe that the vast majority of cases of chronic pancreatitis are due not to gallstones, as is supposed usually, but to infection of the pancreas through the duodenal opening from duodenal catarrh. The condition may also follow pancreatic calculi, stenosis from ulceration or growth, or it may be due to the extension of an inflammatory process from gastric ulcer. There is no one known pathognomonic symptom of

chronic pancreatitis; palpation, even when performed under anesthesia, is a very unreliable method. There may be jaundice, but pancreatic jaundice is not characteristic. The same is true of ascites, fat in the feces, and lipuria. The quantitative estimation of indican in the urine is of importance, since indican is derived from indol, which is formed in pancreatic digestion under the influence of bacteria. An increase of indican, demonstrated with chemically pure nitric acid, means that something is wrong; it does not prove anything conclusively, but may give valuable information. When indicanuria is present we must ascertain whether the condition is transient or permanent. Chronic pancreatitis is often responsible for increased indicanuria and if other causes can be eliminated, chronic pancreatitis should be thought of. Surgical treatment in advanced cases has been followed by very favorable results, yet the author feels that it is proper to go to work tentatively with dietetic, physical and medical measures, inasmuch as many of these cases will go on to a spontaneous cure. Deep massage is useful, likewise outdoor exercise and sports. Eat and drink according to the dictates of experience, remembering that regularity, moderation, temperance, avoidance of extreme cold (ice water) and observance of thorough mastication is sound sense. Glandular stimulants, followed later with intestinal antiseptics, practically are the only internal remedies indicated. Boeckman prescribes a glass of warm Carlsbad water in the morning, and after meals a mixture of diluted phosphoric acid, tincture of nux vomica and compound tincture of gentian, diluted with some water. Alkaline treatment gives immediate relief but aggravates the condition. After treatment as above laid down, he gives intestinal antiseptics, either in the shape of nitrate of silver and naphthalin pills, or iodoform, betol, and animal charcoal pills, to be used for months. If the patient is not benefited by this treatment an exploratory laparotomy is indicated and permissible.

American Journal of the Medical Sciences, Philadelphia.

June.

39 *Surgery of the Prostate Gland. John B. Deaver.
40 *The Clinical Value of the Average Analysis of Gastric Contents. Charles S. Fischer.
41 *General Management and Therapeutics of Nephritis. Beverley Robinson.
42 *Palsy of the Extra-ocular Muscles in Exophthalmic Goiter. Wm. Campbell Posey.
43 Sketch of the External Appearances of Uveitis from Congenital Syphilis. Charles A. Oliver.
44 Actinomycosis of the Tonsils. Jonathan Wright.
45 *Report of a Case of Rupture of an Aneurism of the Aorta into the Lung, with Spontaneous Recovery. N. S. Ferry.
46 Primary Tuberculosis of the Breast. Brooke M. Anspach.
47 Case of Meralgia Paraesthetica. John E. Donley.
48 *Surgical Scarlatina. Alice Hamilton.
49 *Influence of Daylight in the Progress of Malaria; More Especially in Connection with Quinin Treatment. Gunni Busck.
50 Some Pathologic and Clinical Aspects of Acquired (False) Diverticula of the Intestine. Edwin Beer.
51 Complications of Amebic and Specific Dysentery as Observed at Autopsy; Analysis of 120 Cases. Charles F. Craig.

39. Surgery of the Prostate Gland.—Deaver reviews the surgery of the prostate gland and also the clinical history of enlargements, with a description of the technic of the special operations and reports of several cases. The article closes with a statistical table giving the results obtained by various operators with the several operations that have been devised for the treatment of this condition.

40. Clinical Value of the Average Analysis of Gastric Contents.—Fischer says that the chief value of gastric analysis lies in the determination of the average capability to work of the intact remaining portions of the secretory structures. It does not make much difference which methods are employed for this purpose, provided they are used systematically. The necessity for some generally accepted system of examination for the proper recognition and classification of chronic gastric diseases is evident from the variety of opinions which exist as to their relative frequency. For some observers the presence of a small quantity of gastric mucus is sufficient to establish a diagnosis of chronic gastric catarrh. Hence, every third case must be looked on as such. Others regard chronic gastric ulcer as a common condition, whereas in reality all modern methods of examination have very materially reduced its frequency. Gastric dilatation will be a common disease so long as splashing below the umbilicus is deemed sufficient for its diagnosis, and gastroptosis must be very prevalent if we are to take as signs of its existence a contracted thoracic angle or the floating tenth rib of Stiller. No department of clinical medicine lends itself so readily to fads as gastrology, due partly to lack of uniformity of classification, but chiefly to the absence of recognized system in methods of examination employed and to conditions imposed for the same.

41.—See abstract in THE JOURNAL, xlii, p. 484.

42. Palsy of the Extraocular Muscles in Exophthalmic Goiter.—A case of this kind is reported by Posey, and a number of similar cases occurring in the practice of others, from which he concludes that palsy of the extraocular muscles is not of very rare occurrence, and as such is not to be considered as accidental, but rather as a part of the morbid process of exophthalmic goiter. Just what this part is and what the character and where the seat of the lesion may be, can not, in the still uncertain state of our knowledge regarding the nature of Grave's disease, be asserted with certainty, though it would appear, at least, that in those cases in which there is more or less complete ophthalmoplegia externa, and especially in those in which there are associated lesions in the facial, hypoglossal, and glosso-pharyngeal nerves, that the palsy was of central origin, originating in the nerve nuclei. This reference of the palsies to an involvement of the nerve nuclei is of great interest, for it is additional proof of the central origin of the affection; and while the nature of the morbid process in the nuclei which occasions the extraocular palsies is still to be determined, it is probable that the morbid process is only functional, consisting of an irritation of the centers by toxins which may be generated in the system as the result of some perversion in the normal action of that structure.

45. Rupture of Aortic Aneurism into the Lung, with Spontaneous Recovery.—Ferry reports a case of this kind occurring in a man who gave a history of syphilis, and at that time was suffering from organic dementia coming on immediately following a head injury. After the aneurism had existed for sixteen years he suffered from a profuse pulmonary hemorrhage, from which he rallied rapidly. Two years later he was found dead in bed, surrounded by a large pool of blood. The autopsy disclosed the following: The superior lobe of the left lung, into which the rupture occurred, was very dark in color, and firm to the touch. The remainder of the lung was healthy; no signs of tuberculosis or cavity formation. The upper half of the superior lobe of the left lung is taken up by the aneurismal sac, and is somewhat elongated. At the lower end of the sac was a dilation forming a second sac about one-third the size of the first. Immediately beneath this second sac was a cavity, the walls being composed of healthy lung tissue, but very ragged, with the appearance of having been torn apart. This cavity was filled with clotted blood. It communicated with the second sac by means of a small opening. The walls of the aneurism were very much thickened and studded with necrotic areas. On the surface of the lung was found a scar, probably the result of a previous rupture. The aneurism itself occupied the aorta for a distance 10 cm., and was fusiform in shape. Its walls were studded with numerous areas of necrosis. Only eight other similar cases are reported in the literature, and these are reviewed by the author. He concludes that if any one situation is more favorable than another for the spontaneous recovery after rupture of an aortic aneurism, it is the lung, probably because of the better facilities offered for the rapid formation of a clot with which the rupture is blocked.

48. Surgical Scarlatina.—Hamilton reviews this condition and reports ten cases from the records of the hospital of the Memorial Institute for Infectious Diseases in Chicago. One hundred and eighty-four cases of this disease now are recorded in the literature. Operations and wounds of all kinds as well as inflammatory processes, are supposed to predispose to scarlatinal infection. Surgical scarlatina differs from medical scarlatina in five ways: 1. The large number of adults that have it. 2. The shorter period of incubation. 3. The mild

angina or absence of angina. 4. The fact that the eruption begins at a wound or in some other unusual region. 5. The slightly precocious desquamation. Careful examination of the reported cases confirms the view held by most French writers that the eruption is often due to septic infection and is not scarlatina. That the variations of so-called surgical scarlatina from the typical form of scarlet fever are not due to the unusual mode of infection, but to the difference in the infectious agent. In the cases where the disease was undoubtedly scarlatina there is no convincing evidence that the relation between the wound and the scarlet fever was anything more than one of coincidence. There is, as yet, no convincing proof that surgical scarlatina is anything more than scarlet fever in the wounded.

49. **Influence of Daylight in the Progress of Malaria.**—Busck reviews the work done in this connection by King, Harrington, Leaming, and others, and arrives at the conclusion that the cause of the special effect of quinin preparations on malarial patients lies in the power of these preparations to make the plasmodia sensitive so that they are destroyed or weakened under the effect of daylight. He bases his supposition on the following: 1. The special effect of quinin in malaria can hardly be explained entirely as a direct outcome of its toxicity with regard to plasmodia, and if we look for an explanation of this effect we must not leave out of consideration a peculiarity so distinct as the power to make micro-organisms sensitive to light. 2. Quinin preparations have decided sensitiveness-arousing qualities, as was shown by Ullmann. 3. According to Jacobson and Dreyer, light, even after passing through a layer of animal tissue, can exercise its microbicidal effect on the sensitive-made organs. The depth of penetration, of course, depends on the intensity of the light. 4. The tissues of the human body are pellucid, and even if only a comparatively small portion of the surface of the body is exposed to light, the blood, and with it the plasmodiæ, will, on account of its continuous circulation, all the same be affected by the light. 5. If these premises are correct, they indicate the advisability of treating malarial patients with sun baths or electric-light baths in addition to quinin.

Medicine, Detroit.

July.

52 Treatment of Pulmonary Tuberculosis. Robert B. Preble.
53 Annual Economic Loss to Illinois from Tuberculosis. Homer M. Thomas.
54 Diagnosis of Pulmonary Tuberculosis. Frank Billings.
55 Factors Causing Tuberculosis or Aiding Its Spread—Suggestions for Its Prevention. Charles L. Mix.
56 Duty of the State in Restricting Tuberculosis. Harold N. Moyer.
57 Appendicitis—The Case Which Completed by Conversion. James Tyson.
58 Two Cases of Scarlatina-Morbilli and One Case of the So-called Scarlatiniform Serum Eruption in Diphtheria. J. Dutton Steele.
59 *Polyneuritis. L. Harrison Mettler.
60 *Leukemia: with a Consideration of Its Treatment by the Roentgen Ray. E. J. Brown.
61 Chronic Myocarditis Occurring in Elderly People, with Special Reference to Treatment. E. H. Butterfield.
62 *Vaccination. What to Do: How to Do It; What to Expect. E. H. Larned.
63 Lilliputian Delivered of a Living Child by Cesarean Section. L. H. Bernd.

59.—See abstract in THE JOURNAL, xlii, p. 1441.

60. **Leukemia; Treated by the Roentgen Ray.**—Brown reports a case of typical splenomyelogenous leukemia, the diagnosis having been confirmed by blood examination, treated successfully by the internal administration of arsenic and iron and *x*-ray applications to the splenic region twice a week. After one month the patient was very much improved, and the spleen had diminished in size; the blood also had improved. After two months the frequency and distribution of the *x*-ray exposure were increased. Treatments were given daily to the splenic region, the ends of the long bones and to the sternum. In place of the iron and arsenic 1 gr. capsules of quinin, three times a day, were given as a placebo. After seven months' treatment the spleen could only be felt on deep palpation. After ten months' treatment, 106 exposures having been made with a moderately hard tube at a distance of ten inches for ten minutes, the patient was very much improved in appearance and in health. The liver is of normal size and the spleen is not palpable even on deepest inspiration. There is no ascites and no edema of the ankles. The patient is following his usual occupation, and rides a bicycle back and forth from work.

62. **Vaccination.**—Larned insists on early vaccination of an infant, and on frequent revaccination, this being the only sure and safe method of determining immunity against smallpox. He absolutely taboos the use of antiseptics of any kind. Mild soap and boiled water and a clean cloth or gauze sponge, are all one should use in preparing the site for inoculation. He describes his method of vaccinating as follows:

Gently scrub the site of operation with soap and water, using a gauze sponge, rinse the soap off with another sponge saturated with boiled water, and with a third wipe the skin dry. Preferring liquid vaccine, which is marketed in little capillary tubes, I express a drop from one of them. The instrument I like above all others is a large-sized, common sewing needle, the point of which has been broken off, and the resulting sharp edges dulled by rubbing over a file or a piece of emery paper, and sterilized in the flame of an alcohol lamp or a gas-jet. The needle is held firmly between the thumb and finger; the second, third and fourth fingers resting against the arm or leg to support the hand, and the left hand being used to firmly grasp the limb to make a little counter-pressure. Then, with a rotary motion, rub the vaccine into and through the skin with the needle, working over a surface not to exceed one-eighth inch in diameter.

The smallness of the area inoculated has an important bearing on the complications. The resulting vesicle is always larger than the inoculation, and the smaller the vesicle the less probability that it will be injured, that the crust will be disturbed, or that infection will occur. Also, the smaller the original area the less the possibility of introducing extraneous infections. A large pin-head represents the typical size of inoculation, and it should never be more than one-eight of an inch square.

Journal of Cutaneous Diseases, New York.

July.

64 Tumor-like Forms of Tuberculosis of the Skin. Walther Pick.
65 *Case of Reinfection of Syphilis. H. G. Klotz.

65. **Reinfection of Syphilis.**—Klotz reports a case of reinfection occurring six years after the previous manifestations of syphilis. The case yielded promptly for a time to mixed treatment with recurrent exacerbations in the form of gummatous swellings over the ribs, bones of the leg, finger, etc. In the initial attack there was no history of chancre, although in the reinfection this was quite evident. The author is convinced of the authenticity of his case, a typical primary lesion appearing within a certain time after exposure more than six years after symptoms of the previous disease had absolutely disappeared. There was moderate but distinct enlargement of the inguinal glands, followed in due time by a typical syphilide, later on an iritis and another papular eruption; finally a hemiplegia. He believes that tertiary manifestations of syphilis may be directly produced through inoculation from tertiary lesions of some other individual.

Indiana Medical Journal, Indianapolis.

July.

66 Dust—A Neglected Factor in Ill Health. Robert Kessler.
67 Preservation of the Perineum in Occipito-posterior Presentations. E. J. McOscar.
68 Treatment of Inflammatory Phimosis. G. Link.
69 *Affections of the Hands and Feet. Isador Dyer.

69. **Hyperidrosis of Hands and Feet.**—Dyer treats this condition as follows:

Advise the use of white castile soap and restrict excessive drink. Give a small dose of strychnia internally for a long period, about six weeks. To the hands, the use of 3 to 5 per cent. alcoholic solution of salicylic acid frequently during the day; for the feet, a like remedy in powdered form, namely, salicylic acid half dram, tannin one dram, powdered arrowroot and rice starch, of each half an ounce, dusted in the stockings every day. Where the feet are inflamed and not blistered, simple bathing for twenty to thirty minutes in hot water, with four ounces of laundry starch to the gallon, should be of service before the use of powder. In the more chronic condition lead water may be used on cloths applied at bedtime, and if the blisters suppurate, nothing relieves better than a 5 to 10 per cent. solution of ichthyol.

Northwestern Lancet, Minneapolis.

July 1.

70 Uterine Cancer. C. A. Stewart.
71 *Study of the Effect of Borax and Boric Acid on the Human Body, with Particular Reference to Their Use as Food Preservatives. Charles F. Dight.

71. **Effects of Borax and Boric Acid on the Body.**—Dight studied the effect of borax and boric acid from their introduction into the stomach and intestinal canal until they had been taken into and mingled with the blood, and distributed to the cells of the body generally, without finding any effect exerted that would condemn their use as food preservatives. He con-

ducted a series of experiments on guinea-pigs, feeding them a known quantity of borax for a definite period of time, weighing them regularly, counting the red and white blood corpuscles, and after a careful postmortem, made chemical examinations with the view to detecting borax in the tissues, and a microscopic examination for the purpose of determining any structural change in the stomach, intestines, kidneys and liver. As the result of his studies in this line he believes that he is justified in drawing the following conclusions:

1. Borax exerts no specific action on the animal body.
2. Any effect it exerts is because of and by virtue of its mild alkalinity.
3. The sum total of its effects on digestion is not harmful.
4. It exerts no ill effect on the ingredients of the blood.
5. It does not act as an irritant to the tissues generally or locally, nor cause pathologic congestions.
6. By its use nutrition is not impaired.
7. It does not increase proteid metabolism.
8. It is not cumulative within the body.
9. Borax in moderate amount, 2 grams or more daily, exerts no ill effects on the adult body.
10. In proportion of 0.5 per cent. it preserves fresh, sweet meat from putrefaction for long periods of time extending into months; while smaller quantities, even to 0.1 per cent. or less, have been shown in practical use to preserve for periods of less duration.
11. Putrefaction once begun is not arrested by it nor its further progress checked.
12. It is not a deodorant, removing from or concealing in putrefying meat its offensive odor.
13. All this is true of boric acid, also, except that any effect it exerts is by virtue of its mild acidity.
14. Boric acid may be taken in larger quantities than borax without harm.
15. Borax and boric acid, like anything naturally good, may become harmful when taken in excess.

Kentucky Medical Journal, Louisville.

June.

72 Review of the Present Affairs of the Association. Steele Bailey.
73 Scarlet Fever. C. H. Todd.

Louisville Monthly Journal of Medicine and Surgery.

June.

74 Neurasthenia. Andrew W. Bice.
75 Postpartum Hemorrhage. R. A. Allan.
76 Hysterical or Functional Paralysis. John J. Moren.
77 A Few Points in the Treatment of Syphilis. Henry H. Koehler.
78 The Contagiousness of Pneumonia. Frank C. Wilson.
79 Deformities Following Treatment of Fractures. F. T. Fort.

The Post-Graduate, New York.

June.

80 Pyothorax. Carl Beck.
81 Obstructive Jaundice; Its Medical and Surgical Treatment. Wm. Henry Porter.
82 Angina Ulcero-Membranosa (Plaut-Bernheim Ulcer; Vincent's Angina). Alfred Green.
83 Shall We Operate for Pyloric Stenosis or Prescribe for Symptoms? Robert H. Halsey.

Detroit Medical Journal.

June.

84 Headache. J. Vernon White.
85 The Present State of X-ray Therapeutics. A. F. Tischer.
86 Arterio-sclerosis and Atheroma. G. W. Wagner.
87 Drainage of Wounds and Cavities. Frank B. Tibbals.

Northwest Medicine, Seattle, Wash.

June.

88 Details of a Scheme for Subjective Measurement of the Pupil of the Eye. Clinton T. Cooke.
89 The Treatment of Acute Anterior Gonorrhea in the Male, from a Hygienic, Aseptic and Antiseptic Point of View. G. E. Peterson.
90 Pseudo-membranous Enteritis. Wilbur N. Hunt.
91 Some Characteristics of Eastern and European Clinics. (Concluded.) L. F. McCallie.

Alabama Medical Journal, Birmingham.

June.

92 Cranial Injuries, with Report of Cases. Wm. Henry Robertson.
93 The Mechanical and Operative Lines of Orthopedic Treatment. A. F. Toole.
94 The Doctor's Business Side of Life Insurance. E. H. Sholl.

Toledo Medical and Surgical Reporter.

June.

95 Hay Fever. John North.
96 Movable or Floating Kidney. Charles Betts.
97 Malignant Endocarditis. Charles Louy.
98 Typhoid Fever. E. W. Doherty.
99 Surgical Treatment of the Insane. George P. Love.

Old Dominion Journal, Richmond, Va.

June.

100 Fractures of the Skull. J. Shelton Horsley.
101 Headache, Neuralgia, Vertigo and Epilepsy in Relation to Hyperæmia. H. M. De Jarnette.
102 What of the Consumptive? R. H. Garthright.
103 Differential Diagnosis and Treatment of Croupous Pneumonia. Robert P. Williams.
104 Pneumonia—Etiology and Pathology. Manfred Call.

Dominion Medical Monthly, Toronto.

June.

105 Pharmacology and Therapeutics of Salicylic Acid and Its Preparations. Robert MacDonald.
106 Smallpox. Charles A. Hodgetts.

Interstate Medical Journal, St. Louis.

June.

107 Malignant Transformation of Cystic Breasts—Record of a Case. Maivern B. Clopton.
108 Suppurative Osteo-myelitis. William S. Deutsch.
109 Treatment of Certain External Diseases of the Eye by X-rays. John Green, Jr.

Journal of the Mississippi State Medical Association, Vicksburg.

July.

110 Gonorrheal Endocarditis. H. I. Sutherland.
111 Nasal Syphilis. M. H. Bell.
112 Morbid Anatomy of Pneumonia. E. A. Cheek.
113 Mastoid Inflammation with Reference to Treatment, Especially the Preventive Treatment. E. C. Elliott.
114 Treatment of Acute Lobar Pneumonia. J. W. Gray, Jr.
115 Opium. B. F. Ward.

California State Journal of Medicine, San Francisco.

July.

116 Some Reflections on State Examining Boards. W. S. Thorne.
117 Cases of Prostatic Calculi. George Chismore.
118 Malarial Nephritis. G. P. Reinhardt.
119 Pathology and Its Relation to Therapeutics. E. S. Pillsbury.
120 Report of Committee on Medical Education and Legislation. H. S. Orme.
121 Acute Gastroenteritis. Charles Anderson.
122 Complications and Sequelæ of Measles. J. Meyer.
123 Medicolegal Responsibilities of the Physician in Cases Where Insanity Is Alleged as a Defense. J. W. Robertson.
124 Rickets and Proprietary Infant Foods—Report of a Case. Lewis S. Mace.

The Laryngoscope, St. Louis.

June.

125 Tuberculosis of the Nares. Charles H. Knight.
126 Tuberculosis of the Pharynx. James E. Newcomb.
127 Tuberculosis of the Larynx. J. W. Gleitsmann.
128 *Treatment of Tubercular Laryngitis. S. E. Solly.
129 Physiologic Treatment of Cough. Fayette C. Ewing.
130 Case of Hemorrhage Following Tonsilotomy. W. G. B. Harland.
131 Report of Interesting Cases (Localized Pachymeningitis, etc.). Geo. F. Cott.
132 Sarcomata of the Nasal Septum. Richard H. Johnston.

128.—See abstract in THE JOURNAL, xlii, p. 1583.

Southern Medicine and Surgery, Chattanooga.

June.

133 Fractures of the Skull. J. Shelton Horsley.
134 *After-Treatment of Abdominal Section. Lucius E. Burch.
135 Local Treatment of Pneumonia. E. A. Cobleigh.

134.—See abstract in THE JOURNAL, xlii, p. 1175.

Canada Lancet, Toronto.

June.

136 Physicians Rated by Post-graduate Work. John Hunter.
137 X-ray Treatment of Cancer of the Skin. Dr. Leredde.

Journal of Advanced Therapeutics, N. Y.

June.

138 *The Employment of Static Electricity in the Treatment of Nervous Diseases. William B. Snow.
139 *Perineuritis. Almeria W. Baer.
140 Case of Asthma with Fibroids and Pelvic Adhesions Cured by Galvanism. Charles A. Covell.
141 Cataphoresis. James C. Gill.
142 New System of High-frequency Therapeutics. (Continued.) Frederic F. Strong.

138.—See abstract in THE JOURNAL, xli, p. 977.

139.—Ibid.

Oklahoma Medical News-Journal, Oklahoma City.

June.

143 Address, Oklahoma Medical Society. What of the Future? A. L. Bloch.
144 The Surgeon's Assistant. F. L. Clark.

Columbus Medical Journal.

June.

145 Address, Ohio State Medical Association. Charles S. Hamilton.
146 Cocain Anesthesia in General Surgery. W. J. Means.
147 Adherent Placenta. Wells Teachnor.
148 Cesarean Section. Thomas M. Wright.
149 The Medicinal Treatment of Gastric Ulcers. A. Livingston Stage.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

July 2.

1 The Hospital Ideal and on the Concentration of Early Medical Studies in London. Thomas Barlow.
2 Acute Malignant Endocarditis. Dyce Duckworth.
3 Early Microscopic Diagnosis of Tumors. C. B. Lockwood.

4 Pads on the Finger Joints and Their Clinical Relationships. Archibald E. Garrod.
5 Intravesical Separation of the Urine from Each Kidney. B. G. A. Moynihan.
6 Dr. Catheiin's Urine Separator. J. Lynn Thomas.
7 The Leishman-Donovan Body in Ulcerated Surfaces. Patrick Manson and George C. Low.
8 Preliminary Note on the Cultivation of Anaerobes. D. J. Hamilton.
9 Value of Some Methods Used for Testing Disinfectants. E. Klein.
10 Experiments on the Disinfection of Bacillus Typhosus with Sanitas Formalin and Carbolic Acid. David Sommerville.

The Lancet, London.

July 2.

11 Experiments on the Immunization Against Infection of Operation Wounds, Especially of the Peritoneum. Johann von Mikulicz-Radecki.
12 Deaths in Childbed; a Preventable Mortality. (Continued.) W. Williams.
13 Causation, Diagnosis and Treatment of Perforating Ulcer in Typhoid Fever. W. Goodall.
14 *On the Remedial Effects of Sodium Arsenate Employed Hypodermically in Tsetse-Fly Disease in Cattle. Edward J. Moore.
15 The Downes Electro-thermic Angiotribe. H. McNaughton Jones.
16 Diabetic Neuritis. F. W. Pavy.
17 *Treatment of Hemorrhoids and Allied Conditions by Oscillatory Currents of High Tension. T. J. Bokenham.
18 Accidental Vaccinia of the Nasal Cavity. W. H. Bowen.
19 Presence of Bacteria in the Organs of Healthy Animals. H. de R. Morgan.
20 Non-flagellate Typhoid Bacilli. J. W. W. Stephens.
21 Case of Traumatic Tetanus; Recovery. H. Collinson.

14. **Sodium Arsenate in Tsetse Fly Disease.**—Moore relates his experiences accruing from the use of sodium arsenate in the treatment of tsetse fly disease in cattle. Fowler's solution was administered in 1 dram doses three times daily without giving rise to any material improvement. Later single doses of 1 ounce were given daily, but these had to be discontinued as they increased the already existing tenderness of the mouth to such an extent that the animals refused all food and their general symptoms became aggravated. In these circumstances he prepared a 1 per cent. solution of sodium arsenate, rendered slightly alkaline with sodium bicarbonate. He injected 1 ounce of this solution subcutaneously on two occasions at an interval of a week. The beneficial effect was marked and immediate; the teeth became firm, the appetite reappeared, the swelling of the glands was hardly apparent, the animal put on flesh rapidly, and the quantity of milk increased very much. There is no doubt that single large injections of sodium arsenate, 10 gr. or even more, well diluted and given at intervals of a fortnight, exercise the most marked beneficial results in cases of advanced tsetse fly disease. Moore also suggests its employment in man, in whom single injections of 20 minims do not produce unpleasant effects.

17. **Treatment of Hemorrhoids and Allied Condition by Oscillatory Currents of High Tension.**—Bokenham confirms the advantages claimed by Doumer for his method of treating hemorrhoids and sphincter fissures by currents of "high frequency." The treatment is painless, it involves no interference with ordinary occupations, and it affects a cure in a very high percentage of cases treated. Analysis of the cases published by others also shows a remarkable consensus of opinion in favor of this treatment. Writers agree that Doumer's method is striking and quickly successful in cases of sphincter fissure, and in healing the small fissures so often associated with hemorrhoids. It is valuable in relieving pruritus ani associated with similar conditions. In the treatment of external and internal hemorrhoids its value is greatest in the early cases where there is little hyperplasia and thickening of the tissues. In cases of old standing, accompanied by much hypertrophic change and infiltration, the treatment gives less certain results, and must be persevered in for long periods.

The Clinical Journal, London.

June 28.

22 *The Intimicality of Pregnancy and Uterine Fibroids. J. Bland-Sutton.
23 Disseminated Sclerosis. Byrom Bramwell.
24 *Some Principles in the Treatment of Syphilis. J. Brunet Lane.

22. **Intimicality of Pregnancy and Uterine Tumor.**—Bland-Sutton says that the harmfulness of the association of pregnancy and fibroids is of three kinds: (1) obstructive, sometimes leading to impaction and even slow torsion of the uterus; (2) septic infection, the result of carelessness in antiseptic details following miscarriage or delivery at term; (3) degeneration of the fibroid, a condition not fully appreciated by obstetricians. The usual color of a uterine fibroid is pale yellow, but in the course of pregnancy it assumes a deep red or mahogany-pink, especially if it is an interstitial fibroid. This change in color, known as "red degeneration," is the result of a necrotic change in the tumor. It is accompanied by painfulness and tenderness, two marked clinical symptoms, especially when the dégeneration is associated with pregnancy. So much so is this true that when a tumor suspected of being a fibroid of the uterus becomes painful and tender, it signifies that it is undergoing secondary changes, and especially "red degeneration," or that some complication has arisen in the pelvis. In a fair proportion of cases it means that the tumor is not a fibroid—that the diagnosis is probably erroneous. It is also worth noting that the painfulness and tenderness associated with red degeneration is only markedly observed in fibroids when associated with pregnancy. The author cites five cases in support of his statements.

24. **Syphilis.**—Lane, appreciating that the ordinary syphilitic out-patient has no idea of the gravity of this disease, has had the following instructions printed, a copy of which is presented to each syphilitic patient, and an attempt made to impress on him their importance:

1. The disease from which you are suffering is syphilis, which, unless carefully attended to and treated, may seriously affect your health, your power of work, and even your life. If you follow out instructions and continue the treatment for the time prescribed, you will, in all probability, be eventually cured.
2. There is a danger of your conveying the disease to others for at least two years after it has been acquired, and even while you are carrying out the treatment prescribed.
3. Any spot, sore or ulcer on any part of your body may convey the disease to those with whom you come in contact; consequently great care must be taken to avoid transmitting the disease by means of cups, spoons, pipes or other things placed in the mouth. Such things should never be used by others unless thoroughly washed: further, the disease may be conveyed by kissing.
4. Your diet should be plain but nourishing; all excess in drinking must be avoided, and no spirituous liquor should be taken.
5. The teeth should be cleansed morning and evening with carbolic tooth powder, and smoking should not be indulged in.
6. The treatment must be continued at intervals for the space of three years, but if a metallic taste is noticed or an excessive flow of saliva from the mouth, it should be discontinued for a time.
7. Should you get married before you are informed that you are free from all traces of the disease, your wife will probably contract it, and also any children born of the marriage.

Indian Medical Gazette, Calcutta.

June.

25 An Outbreak of True Beri-Beri in an Assam Jail. Campbell Dykes.
26 *Cultivation of the Bacillus Leprae and the Treatment of Leprosy by the Injection of a Leprolin Manufactured from Cultures. E. R. Rost.
27 Destruction of Mosquitoes in Bijapur. A. Heeton.
28 Lemna Minor as a Preventive Against Mosquitoes. J. R. Adie.
29 Cultivation of Streptothrix Madurae. J. W. Cornwall.
30 Report on Plague and Inoculation Operations, Amritsar District. E. Browning Smith.

26. **Serum Treatment of Leprosy.**—Rost has manufactured a serum from cultures of the lepra bacillus which he has used in the treatment of this disease. Small pieces of pumice stone are washed and dried in the sun and then made to absorb beef extract. They are then placed in bottles having a wide central tube leading to the bottom, and an outlet tube at the top. Superheated steam is passed through the bottles, and acting on the beef extract in the pumice, carries over to a condenser the more nutrient values of the extract, the salts and non-volatile substances being left behind. The nutrient fluid is collected in sterilized Pasteur flasks, which, when cooled, are inoculated from cultures of leprosy. These flasks are allowed to incubate at 37 C. for a period of one month to six weeks, until they present a turbid appearance and a stringy white deposit, which on being shaken up forms stringy, white, curly, heavy cloudiness in the flask. The cultures are then passed through a sterilized Pasteur filter several times, after which they are reduced to about one-tenth the original bulk by exhaustion over sulphuric acid in a vacuum; the fluid is then mixed with an equal quantity of glycerin and kept in an icebox until required for use. Ten c.c. of this fluid (leprolin)

causes a violent reaction in a case of leprosy, the temperature rising to 104 F., and the patches becoming red, hot and swollen. Thirty-five cases of leprosy have now been injected with leprolin, and in most of them the injections have been followed by very marked improvement, and in some by almost complete subsidence of the disease. Two cases have apparently been almost cured, there remaining hardly any sign of the original disease. In those cases where the reaction after the injection is severe, there was a great improvement in their condition, whereas in those cases where there was only a slight or no reaction, the improvement was slight or nil. Rost believes that leprolin has a very marked beneficial action in the disease, which is not accompanied by any danger of aggravation; that its continued and persistent use will dispel all signs of the disease.

Bulletin de l'Académie de Médecine, Paris.

31 (LXVIII, No. 23.) Discussion sur l'hygiène de l'alimentation des enfants du premier age (of nursings).
32 Transmission of Sleeping Sickness by Tsetse Flies. R. Blanchard.—Quelques faits relatifs a la transmission de la maladie du sommeil par les mouches tsetse.
33 (No. 24.) Sur les médicaments héroïques. Committee report.
34 Traitement de la myopie par l'extraction du cristallin transparent. Lagrange (Bordeaux).

Presse Médicale, Paris.

35 (I, No. 47.) A propos de la décapsulation du rein (of the kidney). G. de Rouville.
36 *Sur un nouveau procédé de diagnostic précoce des affections osteo-articulaires. Chiray and Muret (Paris).
37 (No. 48.) Conservation du lait par l'eau oxygénée (preservation of milk with hydrogen dioxid). F. Dastresses.
38 *Drinking Water for Cities. J. Courmont (Lyons).—L'alimentation des villes en eau potable. Dangers de l'eau de source. Impossibilité d'une surveillance efficace.
39 *Prophylaxie et traitement de la surdité (of deafness). E. De Lavarenne (Luchon). (Commenced in No. 47.)
40 Valeur clinique de la réaction de l'urobénzaline. F. Deberain.
41 *Treatment of Varices by Walking. Marchais. From society report.
42 *Subarachnoid Injections of Caffein, etc. J. Glover. From society report.
43 *Röntgen Treatment of Gastric Cancer. Doumer. From society report.

36. Tuning Fork in Early Diagnosis of Bone and Joint Affections.—Chiray and Muret announce that the application of a tuning fork to the bone is scarcely felt by a sound bone, but in case of disease it is experienced as a shaking, a trembling, an electric shock or a burning, as the sensation is variously described by various subjects. By this means it is sometimes possible to discover a lesion long before there is any tenderness on pressure. The tuning fork used was a large one, the branches 25 cm. long, the total weight 500 gm., with 128 vibrations to the second. The foot was applied first to the sound side and then to the affected side, cautiously questioning the subject in regard to the sensations, avoiding any suggestion. In several patients pressure on the head of the femur was not at all painful, while the hyperesthesia to the vibrations was very marked over the iliac spine, great trochanter and head of the femur. It is possible by the negative response to determine the integrity of the bone in case of tumors nearby when clinical examination gave dubious results. In case of Pott's disease there is hyperesthesia in the vertebræ in the incipient stages, but it soon gives way to anesthesia.

38. Drinking Water for Cities.—Courmont proclaims that it is impossible to carry out effectively in practice the French system of water supplies for cities—that is, restricting the drinking water supply to the water from springs in a protected zone. The protection is illusory in fact, and he advocates as far superior what he calls the "American plan" of sand filtration and use of aluminum sulphate.

39. Prophylaxis and Treatment of Deafness.—De Lavarenne is physician at the French watering place, Luchon, and he utilizes the sulphur vapors of certain springs there as a means of sterilizing and relieving the congestion of the mucosa of the ear, nose and pharynx. He has also devised an apparatus by which these vapors are projected into the eustachian tube and middle ear. He describes a number of cases of rebellious deafness thus treated, with recovery of the hearing. Also a number of other cases in which incipient deafness was averted by these insufflations. The effects were very marked in a number of cases of obstruction of the tubes from influenza inflammation—a course of these insufflations has restored the hearing in nearly every instance. He has thus treated 200 deaf subjects. He warns persons with a tendency to deafness to keep away from the seashore, and to take some solution of iodin for ten days, at intervals, in order to maintain the resolving action of the sulphur vapors.

41. Treatment of Varices by Walking.—Instead of repose and elevation of the limb, Marchais cures varices by encouraging his patients to walk more. The circulation is so improved under the influence of a brisk walk that the stagnation causing the varices is ended and they are cured, if of recent formation and improved in any event. The subjects are liable to tire easily, owing to the concomitant edema and atrophy of the muscles. If these are relieved by massage they can then walk one to three hours a day without special fatigue. He has thus treated 22 patients and the results have been highly satisfactory.

42. Medicinal Subarachnoid Injections.—Glover has found by experimental research that solutions of caffein, pilocarpin, atropin, etc., can be injected into the subarachnoid space without harm. When other measures have proved ineffectual and the case is urgent, the subject in collapse, these subarachnoid injections may prove life-saving. In a severe case of heart disease, asystolism, he injected caffein directly into the spinal canal with good results.

43. Roentgen Treatment of Cancer in the Stomach.—Doumer and Lemoine of Lille report that they have treated 20 cases of gastric cancer by means of radiotherapy. Three of the patients are apparently cured; the others were not affected. They suggest that the cured cancers must have been of an epitheliomatous nature, as this class seems most amenable to radiotherapy, while carcinomata do not seem to be affected by it.

Semaine Médicale, Paris.

44 (XXIV, No. 24.) Origine dyspeptique des petits accidents du brightisme. N. Chrysosvergis (Bayreuth).
45 La position élevée de la tête et du tronc dans le traitement post-opératoire de la peritonite (advantage of elevated head and trunk posture). F. Lejars.
46 Traitement des névralgies par l'introduction électrolytique de l'ion salicylique. B. Leduc. Abstract.
47 (No. 25.) Des abscès profonds de l'abdomen comme premier symptôme d'un cancer de l'intestin. T. Tuffier.
48 Les injections intramusculaires de sublimé à dose massive contre la syphilis infantile. V. Isserwol (Jassy).
49 *L'unification internationale de la formule des médicaments héroïques.
50 Sur l'inclusion intrapulmonaire d'une solution de tuberculine chez les tuberculeux. F. Jacob (Berlin). From society report.
51 Temporary Constriction of Limb to Prevent Hemorrhage in Changing Dressings. Tenardi (Turin). Abstract.
52 Instillation of Methylene Blue (2 per 1,000) as Preventive of Ocular Complications in Smallpox. Cumbemale. Abstract.
53 *Adrenalin Internally to Arrest Hemorrhage in Yellow Fever. C. de Souza. Abstract.

49. Unification of Formulas for Heroic Medicaments.—THE JOURNAL duly chronicled the transactions of the international conference on this subject, which was held at Brussels in 1902. The delegates of fourteen states signed the resolutions adopted by the conference, but those of six other countries declined to do so for various reasons. The United States was among the latter—the revision of the pharmacopeia being in the hands of a committee over which the government has no control. As two of the delegates were members of this committee, this abstention is only a technical point. Great Britain and Germany also declined to sign for similar minor technical points. Austria objected to the formula adopted for opium pulvis, and Luxemburg agreed to accept whatever Germany decided on. The only actual opposition to the unification proposed is in the case of Sweden, which objects to the preparation of tinctures by percolation. With this exception harmony seems to be assured, and the unification of the heroic medicines may be regarded as accomplished. It has taken fifty years of effort to realize this result.

53. Adrenalin in Yellow Fever.—De Souza has given adrenalin by the mouth in 36 cases of yellow fever in the hemorrhagic stage. His doses were .015 mg. every fifteen minutes, supplemented by an injection of 300 gm. water containing 30

eg. of adrenalin, with some salt and gelatin. These doses were given for two hours, with the injections twice an hour. The dosage was then reduced. No ill effects were observed.

Archiv f. path. Anatomie, Etc. (Virchow's), Berlin.

Last indexed XLII, page 1533.

54 (CLXXVI, No. 2.) Zur Frage bezüglich der Bewegung und der Emigration der Lymphocyten des Blutes. K. Wlassow and E. Sepp (Moscow).
55 Zur Frage der normalen und pathologischen Histologie der Gallen-Kapillaren in Verbindung mit der Lehre von der Pathogenese des Ikterus. S. Abramow and A. Samoilowics.
56 Zur Physiologie der Schilddrüse (thyroid gland). K. Kishi.
57 Amyloider Tumor der Retroperitoneal-Drüsen (glands). T. J. Tschistowitsch and K. J. Aklimow-Peretz.
58 Zur Anatomie und Pathogenese der Vorderwand-Divertikel des Oesophagus. A. Brosch.
59 Kritisches zur Frage der Ganglione foudroyante and der Schaumorgane (foliminating ganglions and foam organs). Westenhoeffer. Reply to R. Fränkel.

Beiträge z. Geb. und Gynäkologie (Hegar's), Leipsic.

Last indexed XLII, page 1533.

60 (VIII, No. 3.) *Connection of Streptococcus with Puerperal Fever. E. Baum and W. Sigwart (Halle).—Ueber die Beziehungen des Streptokokkus zum Puerperalfieber.
61 Premature Detachment of Normal Placenta. G. Schickele (Strassburg).—Die vorzeitige Lösung der normal sitzenden Placenta.
62 *Die diagnostische Bedeutung der Ligamenta sacro-uterina. H. Sellheim.
63 *Ruptur eines Chorio-Epithelioms mit schwerer intraperitonealer Blutung. K. Hörmann.
64 *Concerning Malignancy and Spontaneous Healing of Chorio-epitheliomata. Ibid.—Zur Frage der Bösartigkeit und der Spontanheilung von Chorio-Epitheliomen.
65 Icterus gravidarum. R. von den Velden (Heidelberg).
66 Zur operativen Myom-Behandlung. K. Kober (Breslau).

60. Connection of Streptococcus with Puerperal Fever.—The vaginal secretions of 103 women in the last months of pregnancy were examined and streptococci were discovered in 38.16 per cent. of those examined once, and in 83 per cent. of the 18 primiparæ examined more than once, and in 55 per cent. of 9 multiparæ. About 20 per cent. of the women with positive findings developed fever, and 11 per cent. of those with negative findings. The fever was very slight in every instance. Aërobic chain cocci were evident in the secretions of more than 75 per cent. of all the women examined, and with better technic they would probably have been found in every one. This ubiquity of the streptococcus suggests a number of interesting queries.

62. Diagnostic Import of the Sacro-uterine Ligaments.—Sellheim proclaims that palpation of the sacro-uterine ligaments is the most reliable means of distinguishing between tumors growing into the open abdominal cavity and those located in the peritoneum or in a ligament. Systematic palpation of these ligaments through the rectum should never be neglected in diagnosing gynecologic affections. He gives numerous illustrations to show the anatomy and physiology of these ligaments, and the best technic for their investigation, as well as the interpretation of the various findings of palpation through the vaginal and rectal walls. Rectal examination is much easier than the vaginal. The examining finger in the rectum must be passed beyond the folds of the sphincter ani tertius. This brings it exactly behind the ligamen a instead of below them, and palpation is facilitated by injecting half a pint of tepid water into the rectal ampulla. This distends the ampulla, but the sphincter still protrudes into the lumen and is thus easily recognized. The finger passed beyond it is then crooked and the ligaments are readily felt at once. By pushing the sphincter and sacro-uterine ligament forward and downward, the palpating finger has a free field for further exploring the broad ligaments, the ovaries and tubes and the walls of the pelvis. The thin and yielding rectal wall allows the finger to palpate up to the fork of the iliac artery, and forward almost to the horizontal ramus of the pubis. Sellheim describes the findings in different groups of gynecologic cases. Inflammation in the vicinity is usually accompanied by a thickening and tension of the sacro-uterine ligaments.

63 and 64. Spontaneous Healing of a Chorio-Epithelioma.—Hörmann reports a case in which masses of a growth of this kind were evacuated, and recurrences twice removed by curetting, with excision of metastases in the vagina—and now the patient has entirely recovered. In the preceding article he gives the history of the bursting of a growth of this kind in a woman of 38 during cautious examination. There had been no previous hemorrhages in this case.

Centralblatt f. Chirurgie, Leipsic.

Last indexed page 229.

67 (XXXI, No. 22.) Successful Suture of Heart. A. Vogel.—Fall von Herznaht.
68 Traumatic Facial Paralysis Cured by Anastomosis of Facial and Accessory Nerves. W. Mintz.—Durch Nervenanastomose geheilte traum. Facialislähmung.
69 (No. 23.) Ueber Operationen unter unmittelbarer Leitung der Röntgen-Strahlen (operating under direct inspection with *x* rays). G. Holzknecht, R. L. Grünfeld and Perthes. Polemic. See abstract 48, page 1606, of last volume.
70 *Treatment of Contracture of Joints with Röntgen Rays. E. Moser (Elttau).—Behandlung von Gelenkkontrakturen mit Röntgenbestrahlung.

70. Treatment of Contracture of Joints with Roentgen Rays.—Moser does not wait for further confirmation, but hastens to report the excellent results obtained in 2 cases by radiation. Almost all the joints of the first patient were ankylosed and there was palpable friction during movement—probably the results of gout. A skiagram was taken of one knee and the patient complained that she had had pains in all her joints thereafter. Moser noticed that the knee that had been exposed seemed less swollen than before, and he applied the Roentgen rays as a therapeutic measure for a minute to each knee. The patient reported four days later that there had been marked improvement since, not only of the exposed joints, but of all the others. The exposures were continued at intervals of several days, the duration increased to a maximum of three and a half minutes, the knees being the only joints exposed. The improvement progressively continued until the patient is now able to dress herself and do up her hair, previously impossible, and take a half-hour walk. In the other case the patient was a man of 63 and the stiffness of the joints was evidently due to chronic rheumatism. The joints became much more flexible under the *x*-ray treatment, but the pains were not influenced until a week or so later than the perceptible influence on the joints. No other measures were applied in either case outside of the Roentgen rays.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 229.

71 (XXVIII, No. 15.) *Bilateral Ligature of Hypogastric Arteries in Case of Inoperable Uterine Cancer. G. Kösler.—Zur doppelseitigen Unterbindung der A. hypogastrica bei inoperablem Uterus-Karzinom.
72 Eclampsia gravidarum und Bossi'sche Methode. F. Wolf.
73 *Die Nephrotomie bei Anurie Eklamptischer. A. Sippel.
74 Perforation of Vaginal Wall by Pessary. Hildebrandt.—Was mit dem Kouisenmesser von Menge perforieren kann.

71. Ligature of Arteries in Case of Uterine Cancer.—Kösler found that bilateral ligature of the hypogastric arteries in 5 cases of inoperable carcinoma of the uterus promptly arrested the previous hemorrhages. The discharge was also checked, with the exception of one case. This successful result did not last more than six months. The hemorrhages and the discharges reappeared then, probably owing to the development of collateral circulation. The size of the tumor was not reduced in any instance. In still another case he threw a ligature around both of the hypogastric and ovarian arteries and the arteries of the round ligaments as an emergency measure in a case of hemorrhage from arrosion of the uterine artery by an inoperable carcinoma. The results observed commend the measure of ligation of both hypogastric arteries as a vital indication in certain cases.

73. Nephrotomy in Anuria of Eclampsia.—Sippel's patient succumbed in coma from persistent anuria in the course of severe eclampsia. The organs were found apparently sound with the exception of the kidneys. The left was of normal size and color, but the right was enlarged and almost a blue-black. The capsule was tense and as it was incised it retracted and the kidney substance gushed forth, showing that it had been under extraordinary tension. He theorizes in consequence that the venous congestion indicated by these findings might have been relieved by nephrotomy in time. Incision of the capsule might relieve the venous congestion and thus cure the otherwise fatal anuria in certain cases of eclampsia.

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Monatshefte f. praktische Dermatologie (Unna's), Hamburg.
Last indexed XLII, page 288.

75 (XXXVII, No. 12.) Fall von Erythema induratum (Bazin), kombiniert mit Lichenscrofulosorum. J. Bölmer (Graz).
76 Ueber einen, dem Tuberkuliden aequiformen et ulcerativen ähnlichen Krankheitsfall. A. Jordan (Moscow).
77 (XXXVIII, No. 1.) Die X-Zellen des spitzen Condyloma. P. G. Unna.
78 *Freaks of the Compressor Urethræ. C. Berliner.—Verhängnisvolle Launen des Schliessmuskels.
79 (No. 2.) Urethritis bei Oxalurie und Phosphaturie. Oxalurie und Phosphaturie als Symptome der Neurasthenie. R. Dalbanco (Hamburg).
80 (No. 3.) *The Effective Constituents of the Polychrome Methylene Blue Solution and an Improvement of the Spongioplasm Stain. P. G. Unna.—Die wirksamen Bestandtheile der polychromen Methylenblaulösung und eine Verbesserung der Spongioplasmafärbung.
81 Mesotan-Exanthem. C. Berliner (Aix la Chapelle). (Also A. Sack in No. 5.)
82 (No. 4.) Classification of Agents of Dermatomycoses. H. C. Plaut.—Zur systematischen Stellung der Dermatomycosenerreger.
83 *Valve Syringe. Engelbreth (Copenhagen).—Die Ventilspritze.
84 (No. 5.) Ueber idiopathische multiple Haut-Sarkomatose (et alia). F. v. Krzyanowicz (Cracow).
85 (No. 6.) Histologic Study of Certain Reducing Substances Used in Dermatology. V. Lotatti.—Histologische Untersuchungen, etc.
86 Valve of Unna's Chloral-Camphor Salve Gauze for Burns. M. Hodara (Constantinople).—Kevel Pillen von Verbrennung mit Unna-Sack Chloral-Camphor-Balsammull behandelt.

78. Freaks of the Compressor Urethræ.—Berliner relates that a young man found it impossible to withdraw a long rubber tube which he had passed into his bladder, the compressor urethræ gripping it so tight that it was impossible to move it. The tube was 4 mm. in diameter, more than a yard long and about two-thirds must have been in the bladder. After fifteen to twenty minutes of waiting, tranquillizing and diverting the mind of the patient, Berliner was able to draw the tube partly out, but then the sphincter gripped it again and another fifteen minutes elapsed before a further attempt was made, which this time proved successful. He argues to show that a similar transient spasmodic contraction might easily simulate stenosis of the urethra, especially after a fright, distress, sexual excitement or in embarrassment from any cause. Tranquil expectancy may thus cure up many puzzling cases.

80. Improved Stain for Spongioplasm.—Unna announces that the effectual element in the polychrome methylene blue stain is a combination of the blue with an alkaline carbonate, forming a methylene azure carbonate. The addition of methylene violet adds still further amounts of carbonates and alkaline chlorids, and enhances its staining properties for spongioplasm. His formula is .25 parts azure carbonate (Giemsa), .25 parts potassium carbonate, 1 part methylene violet (Bernthsen), and equal parts of distilled water and glycerin to make 100 parts.

83. Valve Syringe.—Engelbreth's urethra syringe has been described in these columns. Its special feature is the addition of an asbestos valve which opens and allows the escape of the fluid whenever the pressure rises above a certain figure. By this means it is impossible to inject more fluid than the urethra can conveniently hold without undue distension. The syringe thus adapts itself automatically to the capacity of every individual urethra. He gives an illustration of it, slightly modified from his first syringe.

Therapie der Gegenwart, Berlin.
Last indexed XLII, page 288.

87 (XLV, No. 5.) Puncture of Sinus. R. Neiser (Stettin).—Ueber Probepunktion und Punktion des Schädels.
88 Rectal Feeding, Especially in Gastric Cancer. Klinenberger (Frankfurt a. M.).—Ueber rektale Ernährung mit bes. Berücksichtigung des Ulcus ventriculi.
89 Local Treatment of Affections of Lower Bowel. M. Pichardt (Berlin).—Zur lokalen Behandlung von Erkrankungen der unteren Darmabschnitte.
90 *Bloodless Nerve Stretching. A. Lewandowski.—Ueber unblutige Nervendehnung.
91 Phosphorus in Treatment of Certain Convulsions in Children. Gerhartz.—Zur Phosphor-Behandlung gewisser Krampfformen der Kinder.
92 Zur unblutigen Phimosen-Behandlung. Ortipski (Halberstadt).
93 Memories of Kussmaul. Senn.—Erinnerungen an Kussmaul.

90. Nerve Stretching in Therapeutics.—Lewandowski treats certain neuralgic and trophic affections by systematic stretching of various nerves by flexing and twisting the joints, keeping up these exercises for weeks with several repetitions each day. Old cases of sciatica have been rapidly cured by these simple exercises, and the distant effect on remote trophic affections has been surprisingly beneficial. The finger and hip joints, knees, elbows, ankles and wrists are systematically exercised to overstretch the nerves of the region. Sometimes the backs of the hands are placed together before the stretching is done, which increases the intensity of its action. Exercises of the trunk, stretching and twisting the legs to stretch the sciatic nerve, have been found to exert a favorable influence on neurasthenia, etc. He urges that systematic nerve stretching should be ranked with massage, hydrotherapy, etc., as an important physico-therapeutic measure.

Wiener klinische Wochenschrift, Vienna.
Last indexed XLII, page 289.

94 (XVII, No. 18.) Angina pectoris hysterica. Radioscopia: Tetanus cordis. R. Kienböck.
95 Zur Frage des Hydrothorax e vacuo. M. Siegel.
96 (No. 19.) Appearance of Pus in Spinal Cord. J. Zappert.—Ueber den Auftreten von Pott-Substanz im embryonalen und kindlichen Rückenmark.
97 *Surgery of Posterior Cranial Fossa. F. Alt.—Operative Eingriffe in der hinteren Schädelgrube.
98 Fall von Extra-Uterin-Gravidität mit lebendem reifen Kind (with living child at term). H. Pehem, Ibid. K. Franco.
99 *Zur operativen Behandlung des Larynx-Karzinoms. H. Koschier. (Commenced in No. 18.)
100 Progress in Knowledge of Syphilis in Last 25 Years. E. Fleger.—Fortschritte in der Syphilislehre.
101 (No. 20.) *Tuberitance of Syphilis. I. Neumann.—Ueber Verortung der Syphilis.
102 *Correlation of Physico-chemical Properties and Medicinal Action. W. Pauli.—Ueber den Zusammenhang physikochemischer Eigenschaften und arzneilicher Wirkung.
103 Ueber interparietale Hydrokelen. S. Kostlivy.
104 Observations of Cancer Patients After Radical Intervention. J. Hochenegg. Inaugural address.
105 (No. 21.) Ueber Ruminatio humana und ihre Beziehungen zur Hemophilie. O. Loderer.
106 Pseudoangina pectoris hysterica. Radioscopia. Spasmus glottidis: augmentatio pressus intrathoracalis: evacuatio cordis. R. Kienböck. No. 19 above.
107 Physiologie und Soziologie des Incestes zwischen Vater und Tochter unter Indianern. O. Ribera (Oajaca, Mexico).
108 (No. 22.) Ueber den Uebergang der Immun-Hemolysine von der Frucht auf die Mutter. A. Kraüss and L. Mandl.
109 Zur Differentialdiagnose zwischen knötchenförmiger Hyperplasie der Leber und multipler Adenom-Bildung (differentiation of nodular hyperplasia of liver). J. Bartel.
110 Ueber das offene Meckelsche Divertikel. H. Salzer.
111 *Action of Tuberculin Introduced by Way of Air Passages. E. Kaprallk and H. v. Schrötter.—Erfahrungen über die Wirkung der Einführung von Tuberkulin im Wege des Respirations-Apparates.
112 Cancer Treated with Radium Rays. A. Exner. From society report.
113 (No. 23.) Experimental-Untersuchungen über weisse Blutkörperchen und Exsudatzellen (white corpuscles and exudate cells). K. Holly.
114 Absorption of Albumin from Intestine. F. Hamburger and R. Spark.—Biologische Untersuchungen über Eiweissresorption vom Darm aus.
115 Der Influenza-Bazillus als Erreger der Cholecystitis. J. Heyrovsky.
116 *Hot-Air Treatment of Certain Affections of Genital Organs. J. Salom (Chrobak's clinic, Vienna).—Ueber Heissluftbehandlung einiger Krankheiten der Genitalorgane.
117 (No. 24.) Ueber die Syphilis der behaarten Kopfhaut- (et cetera). E. Fleger.
118 *Action of Sunlight on Skin and Conjunctiva. K. Krebbich (Gras).—Zur Wirkung des Sonnenlichtes auf Haut und Konjunktiva.
119 Ueber die Wirkungsweise hemolytischer Sera (mode of action of). K. Landsteiner and von Eisler.
120 *New Principle Applied to Determine Stomach Outlines. A. Neumann.—Ein neues Prinzip zur Bestimmung der Magengrenzen.
121 Zum Studium der "Frage der Disposition zur Tuberkulose." L. von Schrötter. Address.

97. Operative Intervention in Posterior Cranial Fossa.—Alt reports 2 cases of abscess in the cerebellum operated on successfully. One was consecutive to an acute, the other to a chronic otitis media. In 3 other cases described there was suppurative thrombosis of the transverse or sigmoid sinus complicated by a circumscribed purulent pachymeningitis externa in 3 instances, and by thrombosis of the jugular vein and a metastatic abscess in the lung in the other case. The last mentioned patient recovered rapidly, the course of the case proving the feasibility of resection of the jugular vein in case of an otitic sinus and jugular thrombosis, and its efficacy in preventing a metastatic focus, while the results establish that an already existing metastasis in the lungs is no contraindication to an operation. Metastatic abscesses in the lungs, of otitic origin, may heal after evacuation into the bronchi, but they generally entail fatal pyopneumothorax. In the other cases chills, pyemic fever and meningitic symptoms had been noted for eight to ten days before the operation, but all the symptoms vanished at once thereafter. Cholesteatomata may

cause extensive destruction of the bony walls and open up the posterior fossa, especially when the bone has been softened by a previous suppurative process. Politzer has reported a case in which the cholesteatoma had hollowed out a cavity which included the outer ear, tympanum, part of the mastoid process, the entire labyrinth and the larger part of the pyramid. Even when the cholesteatoma does not force an opening into the posterior fossa, the latter may become secondarily infected by way of the lymphatics or veins.

99. **Operative Treatment of Cancer of Larynx.**—Koschier concludes from his experience in 13 operative cases of cancer of the larynx that the endolaryngeal operation should be reserved for elderly subjects and those unable to bear general narcosis. Under other circumstances he attacks the growth from without. He removed a cancer the size of a bean by the endolaryngeal route from a man of 73 with pronounced atheroma of the vessels and chronic bronchitis. The patient was apparently in good health a year and a half later. He found always that the thyroid cartilage was not affected on the median line, but about 1 cm. from it, corresponding to the favorite site of cancer of the vocal cords. When this spot is found soft it is an indication at once for hemiexcision of the larynx. He prefers to operate in two sittings, with an interval of five or six days to allow the patients time to become accustomed to the new mode of breathing, and for the irritation of the bronchial mucosa to subside. In every case in which the cancer started in or involved the epiglottis later, the growth recurred within a year after its extirpation, attacking this time the tongue or tonsil. The prognosis of cancer of the epiglottis is not so good as when the growth starts in the vocal cords, probably owing to the copious lymph supply of the former. One patient succumbed soon after the operation; there had been considerable bleeding from a thyroid vein, with resulting fulminating bronchopneumonia.

101. **Inheritance of Syphilis.**—Neumann concedes that the influence of maternal syphilis is much greater than that of the paternal. Post-conceptional syphilitic infection may affect the fetus even at a very late stage of the pregnancy. But he is convinced that the father can transmit the infection while the mother may be completely sound. He presents 7 such cases out of his private practice—followed for years—in which the mother has remained free from any trace of syphilitic infection, while the father and the child exhibit unmistakable manifestations of it. In 14 other cases, observed at the clinic, the mother was apparently free from syphilis while bearing a child with various syphilitic stigmata. In another series of 6 cases the husband suffered from the severer forms of syphilis and the pregnancies terminated constantly in abortion or the birth of severely syphilitic children, while the mothers were constantly exempt from any clinical traces of the disease.

102. **Correlation of Physico-Chemical Properties and Medicinal Action.**—Pauli reviews the analogies between the physical and chemical properties of the ions of various salts and their medicinal action, claiming that there are general laws regulating them all. These laws he compares to the "leit motive" in a Wagner opera, weaving in and out and more or less distinct according to the innumerable variations of individual conditions. He attributes a very important rôle to the ions of the salts in the organism. The proteins have the most striking relations with the salts. The albuminoid elements of the organism are those affected by the ions. Anions have a dissolving action on the albumin, and kations a precipitating action. The physiologic action of the ions corresponds to their place in the series of anions or kations. There is a close analogy between the behavior of colloid substances and the vital processes in living matter, notwithstanding the infinite variety of the latter.

111. **Tuberculin Given by Inhalation Instead of Injection.**—This communication from von Schrötter's clinic at Vienna relates in detail the experiences in 28 cases in which tuberculin was administered by inhalation as well as by subcutaneous injection. Absolutely the same results were attained by inhalation as when injected subcutaneously, the only difference being that a larger quantity was necessary to produce the same effect, about thirty times the usual subcutaneous dose being required. All the experiences were with the Bulling spray apparatus for inhalations (thermovariator). About 30 mg. on an average was necessary to induce the Koch reaction in cases of active tuberculosis, while about 250 mg. was required in the cases of inactive or latent tuberculosis of the lungs and in the "clinically non-tuberculous." The reaction induced by inhalation of tuberculin, compared with the reaction that follows subcutaneous injection, affords a more accurate method of diagnosis of the localization of the tuberculous process than has hitherto been attainable. A positive response to inhalation of tuberculin in minimal amounts indicates a tuberculous affection of the parenchyma of the lung—thus localising the process. The two methods should be combined for an exact diagnosis, especially in the cases with vague symptoms, weakness, emaciation, etc., in which the exact condition of the lungs can not be determined with accuracy. The predisposed can be sifted out by this means from those actually infected. The progress of the infection can also be traced in this way, as a subject refractory to inhalation, while responding positively to injection, may later give a positive response to the inhalation showing that the lungs have been invaded. The inhalation technic may also prove useful in controlling the action of medication, in supervising scrofulous children, in determining the prognosis of surgical intervention on tuberculous joints, etc. The writers suggest in conclusion that diphtheria antitoxin might be administered by inhalation exclusively or in combination with subcutaneous injection, and add that inhalation of radioactive substances—such as Tappainer's fluorescent eosin solutions—might be combined with radiotherapy of the thoracic organs as another mode of therapeutic intervention in pulmonary processes. In a number of the cases described the diagnostic inhalation of tuberculin displayed marked therapeutic effect. The tuberculin does not undergo alteration in its passage through the walls of the air passages any more than in subcutaneous injection. A positive response to injection of 1 mg. indicates the inhalation test, and if there is a positive response to inhalation of 30 mg. the lungs can be assumed to be already tuberculous. The utilization of the respiratory tract in immunization, by means of inhalation of toxins in the form of a fine spray, opens new fields for research. Cornet has done work in this line, using the Jahr apparatus. He found that the reaction after inhalation was more pronounced than after injection of the same amount of tuberculin—this result being probably due to the coarser form of the spray from this apparatus.

116. **Superheated Air in Treatment of Gynecologic Affections.**—Salom mentions that this method of treatment has been in vogue at Chrobak's clinic for two years. An apparatus is used of the Reitler type, heated by gas or an alcohol flame, the box made of wire netting and sheets of asbestos, covered with felt. An opening into a box containing calcium chlorid allows the moisture to be absorbed by the chlorid, thus promoting transpiration. The temperature is raised as high as can be borne by the patient, from 90 to 135 C., keeping it at a constant figure if possible, the duration of the application from half an hour to an hour. Fifty-seven patients were thus treated, all but 3 being between 18 and 40. The number of applications ranged from 4 to 77, the average 23. The relief of the pain is one of the most striking effects of the treatment; the patients are improved subjectively first and the objective improvement—as resolution and absorption progress—soon follows. The greatest benefit was derived in the cases of parametritis. Nine of the 23 patients in this class were cured and 12 essentially improved. Six patients with perimetritis were much improved and 2 patients with pelveo-peritonitis with exudation were cured with an average of 26 applications. One of 2 patients with a postoperative fistula was also cured, and all but 5 of 22 cases of tumor in the adnexa were subjectively cured or much improved, but objectively 13 were unimproved. The inaccessibility of the internal genitalia does not allow us to hope too much from this treatment, but even with this restriction it frequently accomplishes results unattainable by any other method.

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118. **Action of Sunlight on Skin and Conjunctiva.**—Krafkich has had occasion to observe 3 cases in which the skin reacted to sunlight at the onset of hot weather with a thickening and pigmentation which affected also the conjunctivæ. The similarity between the cutaneous and ocular findings inclines him to ascribe them to the same cause—the action of the sunlight. The eye findings corresponded in every respect with the typical lesions of vernal conjunctivitis. He consequently treated them by covering the eye with a black bandage under which conditions rapidly returned to normal. The chemical rays of the sunlight can readily pass through the lid and affect the eye, and prophylaxis of recurring vernal conjunctivitis should be by shading the eyes and, eventually, the wearing of red protecting glasses. Swelling of the glands in the neck has been observed in connection with vernal conjunctivitis. The swelling may be due to the same action of the chemical rays.

120. **Outlining the Stomach by a New Technic.**—Neumann uses a Politzer rubber bulb with a soft stomach tube for aspiration of the stomach contents, as has been mentioned in these columns. He now announces that after the stomach has been emptied and a clean bulb attached to the tube, it is possible to determine the outline of the stomach with great precision by listening to the sound when air is forced from the rubber bulb into the stomach. A small amount of air is sufficient for the test, thus avoiding distension of the organ. Radioscopy confirms in every instance the findings with auscultation as the bulb is compressed and the air forced into the stomach. He has found this test useful in differentiation of gastric from intestinal stenosis in dubious cases.

Zeitschrift f. klinische Medizin, Berlin.

Last indexed XLII, page 111.

123 (LII, Nos. 3-4.) Zum Studium der Hämatologie. J. Mitulescu (Bucharest).

124 Blutuntersuchungen bei Bilharzia-Krankheit (study of blood in bilharzia affections). A. Kautsky Bey (Cairo).

134 *Ueber Myxödem. A. Magnus-Levy.

135 *Betrachtungen über Leukämie. L. Pappenheim.

139 *Ueber Leucocyten-Granulationen (Ueber Azurgranula und über Pseudo-Mastzellengranula). A. Wolff (Senator's clinic, Berlin).

137 Ueber die Zuckerbildung im Diabetes mellitus (sugar formation). L. Mohr.

138 Ueber den Auftreten der Glukuron-Säure im Fieber (glycuronic acid in fever). P. Blumenthal and H. Wolff.

139 Digestion of Albumin in the Intestine. K. Glassner (Berlin).—Zur Eiweissverdauung im Darm.

140 Substance Destruction in Fever. L. Mohr.—Ueber den Stoffumfall beim Fieber.

131 *Zur Pathologie und Therapie der Pankreas-Erkrankungen, mit bes. Berücksichtigung der Cysten und Steine. F. Lazarus (von Leyden's clinic, Berlin). (Concluded.)

129 (Nos. 5-6.) Untersuchungen über Mamma-Carcinom bei einer Katze (cat). A. von Leyden.

133 Ueber Spontan-Virulenz-Prüfungen im Verlauf der croupösen Pneumonie und über die prognostische Verwerthung der Virulenz-Curve. Steurer.

134 Determination of Volume of Blood Corpuscles by the Electric Conductibility. P. Prochnik (Berlin).—Ueber die Bestimmung des Blutkörperchenvolumens aus der elektrischen Leitfähigkeit.

125 Cerebrale Localisation der Musik. M. Sternberg (Vienna).

136 Untersuchungen über die Jodausscheidung nach Gebrauch von Jodkali und von Jodipin (elimination of iodin). H. Singer.

127 *Refractometrische Eiweissbestimmungen an menschlichen Blutserum und ihre klinische Bedeutung (refraction tests of albumin in serum). H. Strauss and B. Chajes (Senator's clinic, Berlin).

138 Property of Digitalin Transiently to Reduce Susceptibility of Heart to Artificial Stimuli. K. Brandenburg.—Ueber die Eigenschaft des Digitalin in nicht tödtlicher Gabe die Ansprechbarkeit des Herzens für künstliche Reize vorübergehend zu vermindern.

139 Ueber Leucocyten-Granulation. A. Wolff. See 139 above.

124. **Myxedema.**—In a monograph of 56 pages Magnus-Levy studies the various aspects of myxedema. He emphasizes anew the opposite behavior of this disease and exophthalmic goiter. This opposite behavior is marked even in the gaseous metabolism. He tabulates 14 cases of endemic cretinism and insists on the favorable results of thyroid treatment manifest even by the fourth to sixth week. In myxedema in 10 adults (all but 1 were women), 3 were promptly cured by thyroid treatment. The cure required six months in another case. Two others were essentially improved. The rest refused to continue treatment. Out of 9 cases of sporadic cretinism 5 were promptly cured by thyroid treatment and the others were materially improved. He gives diagrams showing the respiratory gas interchanges in some cases, one with the curve for more than two years, illustrating the influence of various methods of treatment, and of the periods without treatment. Under thyroid preparations the curves of the consumption of O_2 and production of CO_2 rise abruptly and remain high, subsiding again on suspension of treatment. The article is copiously illustrated.

125. **Leukemia.**—Pappenheim's extensive article was sent in last August, and a number of authors have published in the interim views similar to some of those he proclaims, especially that the diagnosis of leukemia can not be based on the blood findings alone. He insists that the most varied circumstances may induce the deceptive picture of a leukemia and simulate it completely. Also that lymphadenoid leukemia is not a distinct entity, but is merely a special form of manifestation of lymphadenoid tumor formation, which may run an aleukemic or a leukemic course, and is thus only a kind of subdivision of pseudo-leukemia. These lymphadenoid hyperplasias are not distinct affections, but sometimes appear as periosteal chloromata, sometimes as essential cutaneous affections, and originate in the most varied infectious etiology, even including the tuberculous, or they may occur as sarcoma formations. The blood findings are not sufficient criteria for differentiating essential malignant hyperplasia from an alymphocytemic lymphosarcomatosis.

126. **Granulation of Leucocytes.**—Wolff affirms that the classification of leucocytes according to their granulation should be maintained, as the objections to it have all been refuted. The presence of azure granulations in the lymphocytes and in the mononuclear leucocytes, indicates a close relationship between these two types of cells.

131. **Pancreatic Affections.**—Among the points brought out in Lazarus' comprehensive study of affections attributable to the pancreas, he emphasizes the fact that it is possible by dietetic measures to rest the pancreas in case of irritation and acute inflammation. The meals should be at long intervals, and it has been found that milk stimulates the secretions of the pancreas less than other articles of food. The functional activity of the organ can be still further reduced by ingestion of alkaline saline waters or Carlsbad salts, sodium bicarbonate or magnesia usta. As these neutralize the gastric juice, the physiologic acid stimulus for the pancreas is suppressed. After subsidence of the inflammatory phase in the pancreatic affection, the indications are to increase the secretion of saliva and thus counteract the results of stagnation and infection and the formation of new calculi. To keep the pancreatic juice fluid, the meals should be nearer together, the intervals not longer than three hours, and food should be eaten before retiring. The diet should be albumin, fat and carbohydrates, all in an easily digestible form. Milk best fulfills all these conditions. Water stimulates the pancreatic secretions, as also peristalsis. The medicinal agents needed are the cholagogs, and possibly calomel and other drugs which may act directly on the pancreas. The organ may also be influenced by mechanical means, deep breathing and manual compression. Stone formation in the pancreas may be prevented by careful treatment of the etiologic factors, catarrh of the stomach or duodenum, cholelithiasis, arteriosclerosis, lues and alcoholism, diabetes, etc. The uncertainty of an early diagnosis and the scanty casuistics of operative treatment of pancreas stones prevent the formulation of decided indications for surgical intervention, but the last decade has contributed to our knowledge of pancreas affections and many have been successfully operated on. Cases of cysts, inflammations, abscesses, necrosis, stones, even epithelial tumors and fat tissue necrosis, have been permanently cured by the surgeon. He mentions that lithiasis of the pancreas occurs pre-eminently at an advanced age, and in males, while gallstone colic chiefly affects women. A supposed gallstone colic in a man, without icterus, especially in the presence of diabetes or fatty stools and anotorrhea, should always suggest pancreolithiasis. Diabetes without colics but with fatty stools is also suspicious.

137. **Refractometric Determination of Albumin in Serum.**—By the technic described it is possible to determine from a single drop of blood the approximate proportion of albumin in the serum. We can thus detect the onset of hydremia or an-

hydremia. The Abbé refractometer was used in the numerous tests described. A single drop of blood was drawn into a capillary tube, which was then fused at both ends and set aside until next day, when it was opened with a file and the serum examined. The findings in a large number of various affections are tabulated. They coincide with the findings by other reliable technics so perfectly that they can be accepted as accurate.

Riforma Medica, Palermo and Naples.

Last indexed XLII, page 1267.

140 (XX, No. 12.) *Influence of Altitude on Heart Affections. G. Galli.—Influenza dell'altitudin sui malati di cuore.
141 Sopra 2 casi di ferite cavitarie (stab wounds of abdomen). P. Fiori.
142 *Una famiglia corsica. A. D. 'Ormea.
143 Per l'eziologia del Sbronicomi suppurati dell'utero. Ricerche batteriologiche. N. Giannettasio.
144 *Action of Extracts of Tuberculous Glands in Experimental and Human Tuberculosis. F. Valagussa. Abstract.
145 *Sulla cura della obesita. F. Grocco. Abstract.
146 (No. 13.) Sul valore del metodo della fermentazione nel dosaggio del glucosio. D. Rivarosa.
147 Sulle Granulomia from Dissecmation from an Old Caseous Focus (18 years), Relic of a Tuberculous Process in the Peritoneum Simulating Typhoid Fever. F. Sicurisal.—Caso di granuloni simile, etc.
148 Three Cases of Pervien Motion in Air Passages. C. V. Pich. —Corpi estranei nelle vie respiratorie.
149 Sulla catatonia. E. Patini and G. Madia (Naples). Abstract.
150 (No. 14.) *La gensei dello scompenso cardiaco (failure of compensation). L. Verney.
151 *La simpatectomia cervicale in rotazione con lo sviluppo ed il decorso dell tubercolosi oculare sperimentale E. De Vecchi and G. Colombo.
152 *Contributo sperimentale all' uso del magnesio in chirurgia. L'assorbimento del magnesio nel parenchima renale. A. Cerqueni.
153 (No. 15.) La tripanosomiasi nell' uomo (in man). G. B. Rusta. (Commenced in No. 14.)
154 *Disinfection of Drinking Water with Silver Fluorid. E. Paterno. Abstract.

140. Influence of Altitude on Heart Disease.—Galli reports without comment 2 cases of vasomotor neurasthenia of the heart—"irritable heart"—2 of aortic insufficiency and one of arteriosclerosis and myocarditis of the Adams-Stokes type, in all of which the patients derived unmistakable benefit from a sojourn among the mountains. The altitude was about 4,000 feet. The patient last mentioned was taken in the family carriage to the upper Engadine, through the passes, at an altitude of more than 7,000 feet. The ascent was made without loitering and a week was spent at this altitude. No ill effects were observed thereafter.

142. A Choreic Family.—Four generations of the family described had eleven members more or less severely affected with chorea, and the young fifth generation seems to be shadowed by the same fate. The only member of the family who has escaped it to the age of 20 was nursed by a foster mother away from home. D'Ormea thinks that this fact is suggestive from a prophylactic point of view.

144. Therapeutic Action of Extracts of Tuberculous Glands.—Valagussa found that animals responded with a slight local reaction and loss of weight to injection of a product obtained from caseous glands. These symptoms subsided in the course of successive inoculations. Rabbits thus treated acquired immunity. All his tests proved that the substance was entirely harmless. In tuberculous human beings there was no general reaction—as to tuberculin—when this substance was injected, and it proved itself entirely harmless.

145. Treatment of Obesity.—Grocco pleads that the treatment of obesity must be based on the individual findings and be varied from day to day to respond to indications as they arise.

150. Genesis of Failure of Compensation.—Verney has examined the hearts in 36 cadavers to determine why compensation fails. He explains it by the hypothesis that when the heart is constrained to perform an extra amount of work (from some cardiac defect or increased resistance in the circulation of the blood, etc.), it becomes hypertrophied. The coronary arteries do not become hypertrophied with it—on the contrary, they are liable to become smaller in diameter as the arteriosclerotic process invades them too. The blood supply thus becomes out of proportion to the size of the organ to be nourished; its nutrition suffers and its reserve forces are soon used up. This assumption supplies an anatomic basis for Martius' theory in regard to the reserve force of the heart. He pointed out that this reserve force becomes exhausted when the hypertrophy reaches a certain limit.

151. Sympathectomy in Relation to Tuberculous Eye Affections.—The experimental research here described was conducted at Martinotti's Institute of Pathologic Anatomy at Bologna. The essential consequence of operations on the sympathetic proved to be the dilatation of the blood vessels which they entailed.

152. Absorption of Magnesium Wire by Kidney Tissue.—Cornezzi exposed one kidney in 6 large rabbits and inserted in it about 1.5 cm. of magnesium wire, .6 mm. in diameter. The wire entered at one pole and was passed along the convex margin, leaving the pelvis intact. It was absorbed in the course of twenty days, becoming disintegrated about the fifteenth day. The kidney tolerated it perfectly, without apparent disturbance of any kind, the injured tubules being repaired but without neoformation of any entire tubules. These experiments were undertaken to study the technic of magnesium prothesis introduced by Payr of Graz. They have amply confirmed its harmlessness and feasibility. The bibliography on the subject is appended. He mentions that magnesium is malleable and lighter than aluminum, but has to be sterilized in alcohol instead of water.

154. Sterilization of Drinking Water with Silver Fluorid.—One part of silver fluorid to 500,000 parts water destroys all germs except anthrax spores and these do no harm by the mouth. This corresponds to a proportion of 2 mg. to the liter of water, or 1.7 mg. of silver, but as a large portion of this is precipitated in the form of a chlorid, the procedure is harmless. Fluorin is a necessary ingredient of the organism. The water does not taste of the drug and is soon clear after its addition.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

THE CLINICAL STUDY OF BLOOD PRESSURE. A Guide to the Use of the Sphygmomanometer in Medical, Surgical and Obstetrical Practice, with a Summary of the Experimental and Clinical Facts Relating to the Blood Pressure in Health and in Disease. By Theodore C. Janeway, M.D., Lecturer in Medical Diagnosis, University and Bellevue Hospital Medical College. Seventy-five Illustrations in the Text in Many Colors. Cloth. Pp. 300. Price, $3.00. New York and London: D. Appleton & Co. 1904.

THE SEXUAL LIFE. A Scientific Treatise Designed for Advanced Students and the Profession, Embracing the Natural Sexual Impulse, Normal Sexual Habits and Propagation, Together with Sexual Physiology and Hygiene. By C. W. Malchow, M.D., Professor of Proctology and Associate in Clinical Medicine, Hamline University College of Physicians and Surgeons. Cloth. Pp. 308. Price, $3.00. Minneapolis: The Burton Co. 1904.

THE SURGERY OF THE HEART AND LUNGS. A History and Résumé of Surgical Conditions Found Therein, and Experimental and Clinical Research in Man and Lower Animals, with Reference to Pneumonotomy, Pneumonectomy and Bronchotomy, and Cardiotomy and Cardiorrhaphy. By Benjamin Merrill Richotts, Ph.B., M.D. Cloth. Pp. 510. Price, $5.00. New York: The Grafton Press. 1904.

A SYSTEM OF PRACTICAL SURGERY. By E. von Bergmann, M.D., P. von Bruns, M.D., and J. von Mikulicz, M.D. Volume III. Translated and Edited by William T. Bull, M.D., Professor of Surgery, College of Physicians and Surgeons, Columbia University, New York, and John B. Solly, New York. Surgery of the Extremities. Cloth. Pp. 918. Price, $6.00. New York and Philadelphia: Lea Brothers & Co. 1904.

A COURSE IN QUALITATIVE INORGANIC CHEMISTRY. By Arthur L. Green, Ph.G., M.D., Ph.D., Dean and Professor of Chemistry, School of Pharmacy, Purdue University, and Charles H. Vandenbloed, Ph.C., B.S., A.C., Analytical Chemist with the H. K. Mulford Co. Fourth Edition. Cloth. Pp. 188. Lafayette, Ind.: Arthur L. Green.

CLINICAL RECORDS OF LIGHT AND X-RAY THERAPY (Illustrated). By G. G. Stopford Taylor, M.D. Durham, M.R.C.S., L.R.C.P. Hon. Attending Physician to the Liverpool Skin Hospital. Cloth. Price, 5 shillings net. London: John Bale, Sons & Danielsson, Ltd. 1904.

THE SUMMER DISEASES OF INFANTS, Their Etiology, Pathology and Treatment. By H. Illoway, M.D., Formerly Professor of Diseases of Children, Cincinnati College of Medicine and Surgery. Cloth. Pp. 150. Price, $1.00 net. New York: E. B. Fulton. 1904.

PRACTICAL ELECTRO-THERAPEUTICS. By Franklin B. Gottschalk, M.D., Professor of Diseases of Children at Jenner Medical College. Cloth. Pp. 551. Chicago: T. Risele.